May 25, 2011

BY RESS & Courier

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
Toronto, Ontario
M4P 1E4

Dear Ms. Walli:

Re: Union Gas Limited
Jacob Storage Pool
Board File # EB-2011-0013, EB-2011-0014, EB-2011-0015

Further to the Ministry of Natural Resources's letter dated April 29th, 2011, please find attached two copies of Union's responses to the MNR's interrogatories.

Sincerely,

Mary Jane Patrick
Administrative Analyst, Regulatory Projects
:mjp
Encl.

cc: Neil McKay, Manager Facilities Applications
Zora Crnojacki, Project Advisor
All Intervenors

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

1. **Re: Issues 1, 2 and 3:**

At Section 3, paragraph 3 of the Applicant's Prefiled Evidence, the Applicant states that *"Once the Jacob Pool is converted to natural gas storage, Liberty will continue to produce hydrocarbons from the Black River Group"*.

With regards to the Liberty operations, please provide:

a) A detailed description of all the wells and works, identifying those wells which penetrate the storage reservoir and documenting how the well construction prevents communication with the storage reservoir;

b) A map showing in detail the Liberty wells and works; and,

c) A description of the business relationship between Union and Liberty regarding operation of the Liberty wells and mineral rights.

How will the Liberty wells be monitored for possible interference with the storage reservoir?

If migration of natural gas between the storage reservoir and the Liberty wells is identified, is there a contingency plan to resolve or mitigate of the problem?

Response:

a) Liberty will continue to operate five wells (RR8A, PPC15, RR4, PPCR31, VRI5) within the proposed DSA. A detailed description of each of the wells is contained in Attachment # 1, "Assessment of Neighbouring Activities Report – Jacob Pool". Wells RR8A, PPC15 and RR4 are equipped with pumpjacks and associated equipment. VRI5 is equipped with a methanol drip. Each well is connected to the production station through a small diameter gathering system. These wells are highlighted on the maps within attachment # 1.

   Three of the five wells (PPCR31, RR8A and VRI5) penetrate the storage zone. These wells are cemented through the storage zone to isolate the Trenton Formation from the Black River Formation preventing communication. In addition, Union will complete cement bond logs and casing inspection logs on each of these wells prior to conversion to storage.

b) A map showing Liberty's active wells within the proposed DSA is attached as Attachment # 2.

c) The following provides a brief description of the business relationship between Union and the producers Liberty Oil & Gas Ltd. and Torque Energy Inc. (the "Producers"). The agreements between Union and the Producers allow the parties to cooperate in developing the oil and gas production and natural gas storage resources of the Dover 7-5-VE field.

With respect to the proposed Jacob Pool, Union has purchased all of the Producers' P&NG Leases and Gas Storage Leases and Union has subsequently subleased the P&NG rights back to the Producers. With respect to all of the area of the Dover 7-5-VE field, except the proposed Jacob Pool, Union has purchased all of the Producers' Gas Storage Leases and has taken an option for the purchase of all of the Producers' P&NG Leases.

The Producers may explore, drill for and produce hydrocarbons within the Dover 7-5-VE field, pursuant to their own P&NG Leases and within the Jacob Pool, through a sublease of the P&NG rights.

Within the Jacob Pool, a sublease of the P&NG Leases, will allow the Producers to explore, drill for and produce hydrocarbons within and below the formation known as the Black River Group. Outside of the Jacob Pool, the Producers may explore, drill for and produce hydrocarbons within and below the Trenton Group pursuant to the Producers' own P&NG Leases.

The Producers or Union, as applicable, are responsible for all obligations arising from their respective exercise of their rights under the P&NG Leases and Gas Storage Leases, including insurance, indemnifications, royalties, abandonment, decommissioning and environmental liabilities.

Any new wells drilled by Union or the Producers on lands subject to a sublease of P&NG rights shall be cemented to surface consistent with applicable legislation, regulations and codes pertaining to storage operations. Enhanced oil recovery operations, including natural gas or water floods, may be undertaken by the Producers to produce hydrocarbons, however, if these operations are undertaken near or within a Designated Storage Area ("DSA") or within a proposed DSA, including the Jacob Pool, Union may request termination of these operations if Union deems that the integrity of the reservoir within the DSA or proposed DSA may be jeopardized. If the Producers accidentally drill into the Trenton Group within a DSA or a proposed DSA, including the Jacob Pool, and the well penetrates a storage reservoir then the Producers shall either complete, re-cement, shut-in or abandon that well at the Producers' expense. If Union determines that any of the Producers' new or existing wells within the Dover 7-5-VE field jeopardize the integrity of a DSA or a proposed DSA, including the Jacob Pool, then the Producers shall either complete, re-cement, shut-in or abandon that well at the Producers' expense such that the integrity of the storage reservoir is protected and preserved.

In the event that communication occurs between the gas bearing zone of the Trenton Group and the Black River Group, Union may exercise its option to i) acquire additional P&NG Leases from the Producers to include the Black River Group within Union's storage reservoir; ii) purchase the remaining natural gas reserves; and iii) drill additional wells into the Black River Group to gain better access to the natural gas communication. Under these P&NG Leases and Gas Storage Leases, Union shall have all right, title and interest to the natural gas and the Producers shall have all right, title and interest to the oil.

Union has an option to develop future storage, outside of the Jacob Pool DSA, within the Dover 7-5-VE field through the exercise of its option with the Producers to purchase the Producers' P&NG Leases and existing wells, so that the P&NG rights are subsequently subleased back to the Producers. Union has the right to drill test wells, including the test well completed for the proposed Jacob Pool, provided that the test wells do not interfere with the operation of the existing wells of the Producers. Union has the right to use the injection wells in the Dover 7-5-VE field to inject fluids removed during storage operations. The Producers will provide all production information, including production data, pressure data and drilling records for the Dover 7-5-VE field to Union and Union will provide production data and drilling records for the Jacob Pool to the Producers.

Assessment of Neighbouring Activities

Jacob Pool Development

December 2010 (Updated May 2011)
Underground Storage Canada
Union Gas Limited

ASSESSMENT OF NEIGHBOURING ACTIVITIES

Jacob Pool Development

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1. Introduction

This report has been completed to comply with the requirements of Clause 7.2 of Standard CAN/CSA Z341.1-10 – Storage of Hydrocarbons in Underground Formations – Reservoir Storage ("CSA Z341.1-10") and to support an application to the Ontario Energy Board for Authorization to Inject, Store and Remove Gas for the proposed Jacob Pool Project. Clause 7.2 states:

A thorough evaluation of all subsurface activities and their potential impact on the integrity of the storage facility shall be conducted and shall include an assessment of

a) existing or abandoned wells within a 1 km radius of the subsurface perimeter of the storage zone, including activities such as fracture treatments that took place within the wells;
b) existing operations within a 5 km radius of the proposed storage scheme, including their purpose, mode of operation, and minimum and maximum operating pressures; and
c) the integrity of any existing well that penetrates the storage zone, including casing, cement, and the hydraulic isolation of the storage zone from any overlying porous zones.

The Project involves development of approximately 69,400 10^3m^3 (2.4 Bcf) of natural gas storage space, which will be used to meet growing demand for natural gas storage services, and will include the drilling of three new injection/withdrawal (I/W) wells, the conversion of PPC Ram 34 (PPC34) to an I/W well, the conversion of the Rowe Ram No. 9, (RR9) well to a Trenton observation well and the conversion of the CanEnerco/CNR #23 (CNECNR23) well to a dual completion observation well to monitor pressures in both the Trenton and Black River Groups. The project also requires the construction of surface facilities to gather and transmit natural gas. The wells and facilities will be designed, constructed, operated, maintained and abandoned in accordance with the CSA Z341.1-10 and in accordance with the *Oil, Gas and Salt Resources Act*, its Regulations and Provincial Operating Standards.

2. Reservoir History and Geology

The Jacob Pool is located in the municipality of Chatham-Kent north of the Thames River and 10 kilometres west of Chatham, Ontario (Figure 1). E.P. Rowe Oil Limited discovered the pool in February 1983 with well Rowe Ram #1 (RR1). The discovery pressure of the pool was 8,026 kPaa (1,164 psia). The reservoir has produced 66.4 $10^6 m^3$ (2.3 BCF) of natural gas and the current pressure of the reservoir is 280.6 kPaa (40.7 psia).

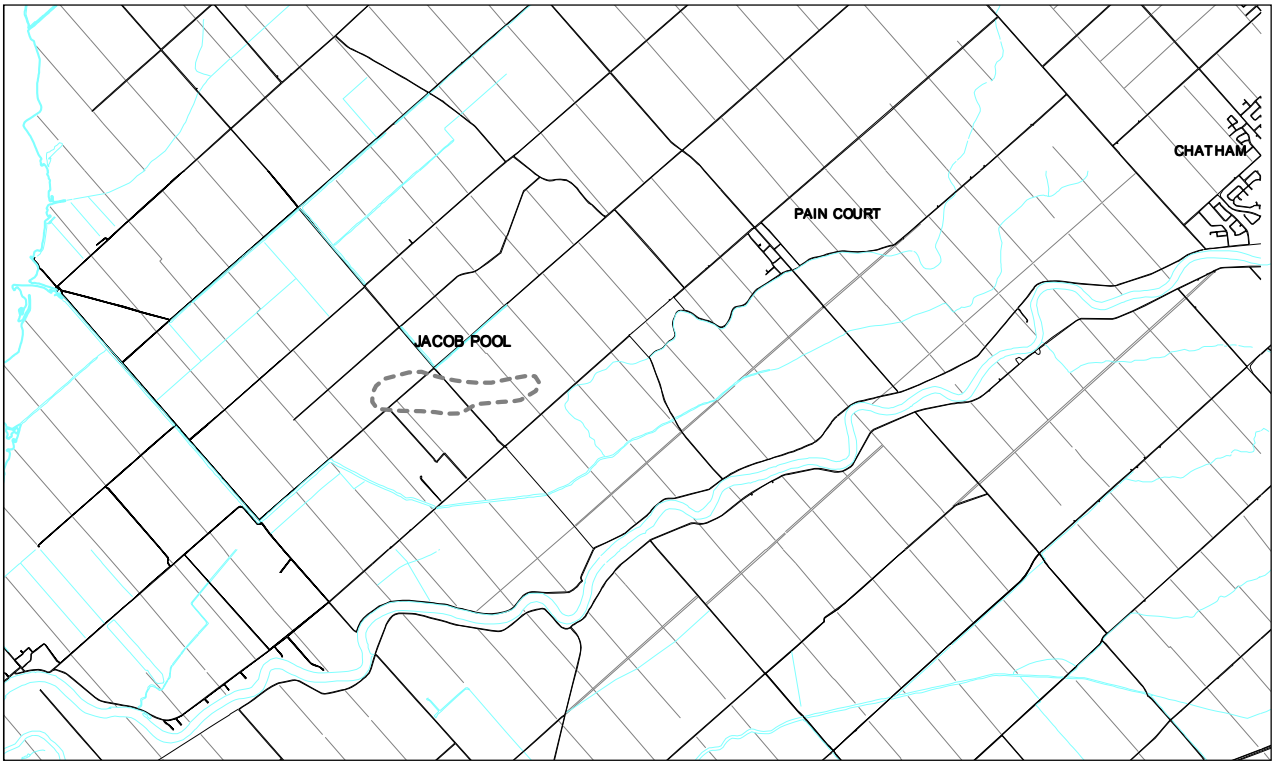


Figure 1 – General location map for the Jacob Pool.

The Jacob Pool is an Ordovician reservoir created by hydrothermal dolomitization along East-West trending wrench blocks. It is approximately 2 km long and ranges in width from 200 - 540 metres (Figure 2). The reservoir is fault bound to the north and south. The east and west boundaries of the reservoir are not as well defined due to the decrease in dolomitization away from the faults and fractures.

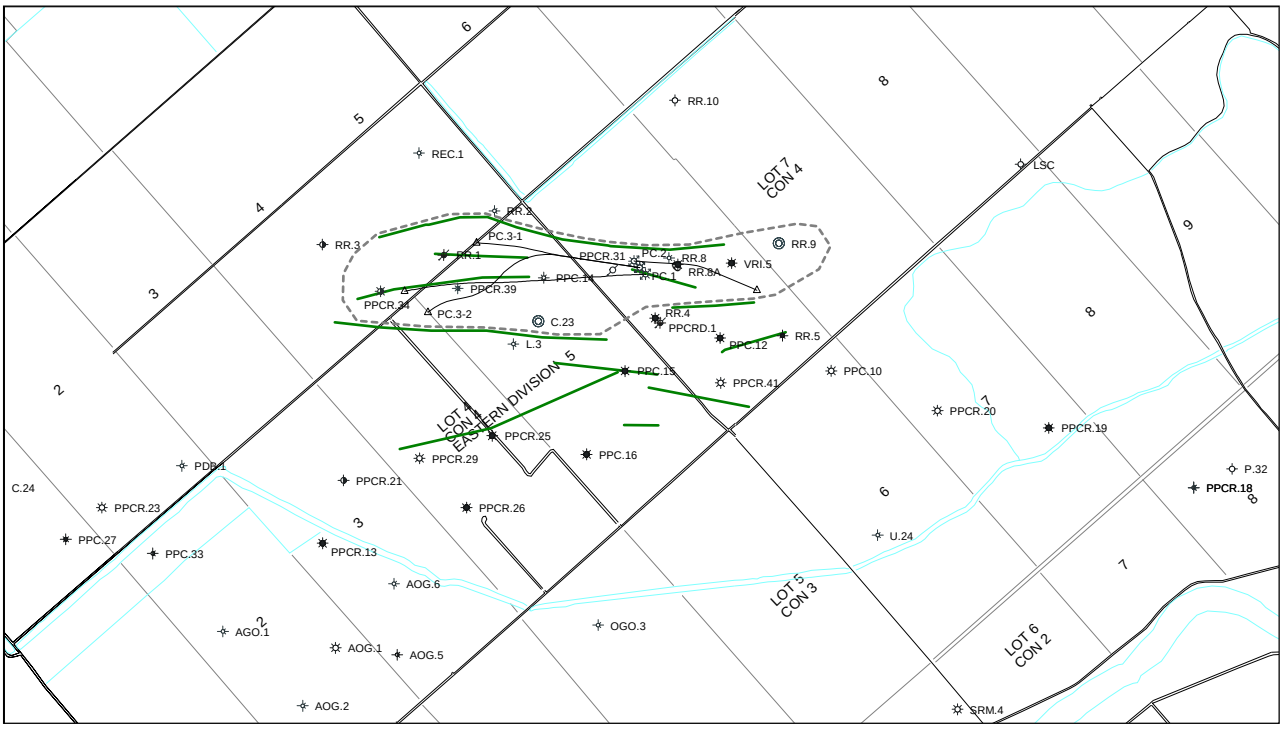


Figure 2 – Jacob Pool Map. Faulting is illustrated in green, reservoir outline in grey.

As illustrated in Figure 3, the Trenton Group is about 115 m thick and is comprised of three formations: the Cobourg, Sherman Fall and Kirkfield. The Sherman Fall Formation tends to be preferentially dolomitized however thin and discontinuous zones of dolomitization that host reservoir quality rocks are present throughout the entire Trenton section.

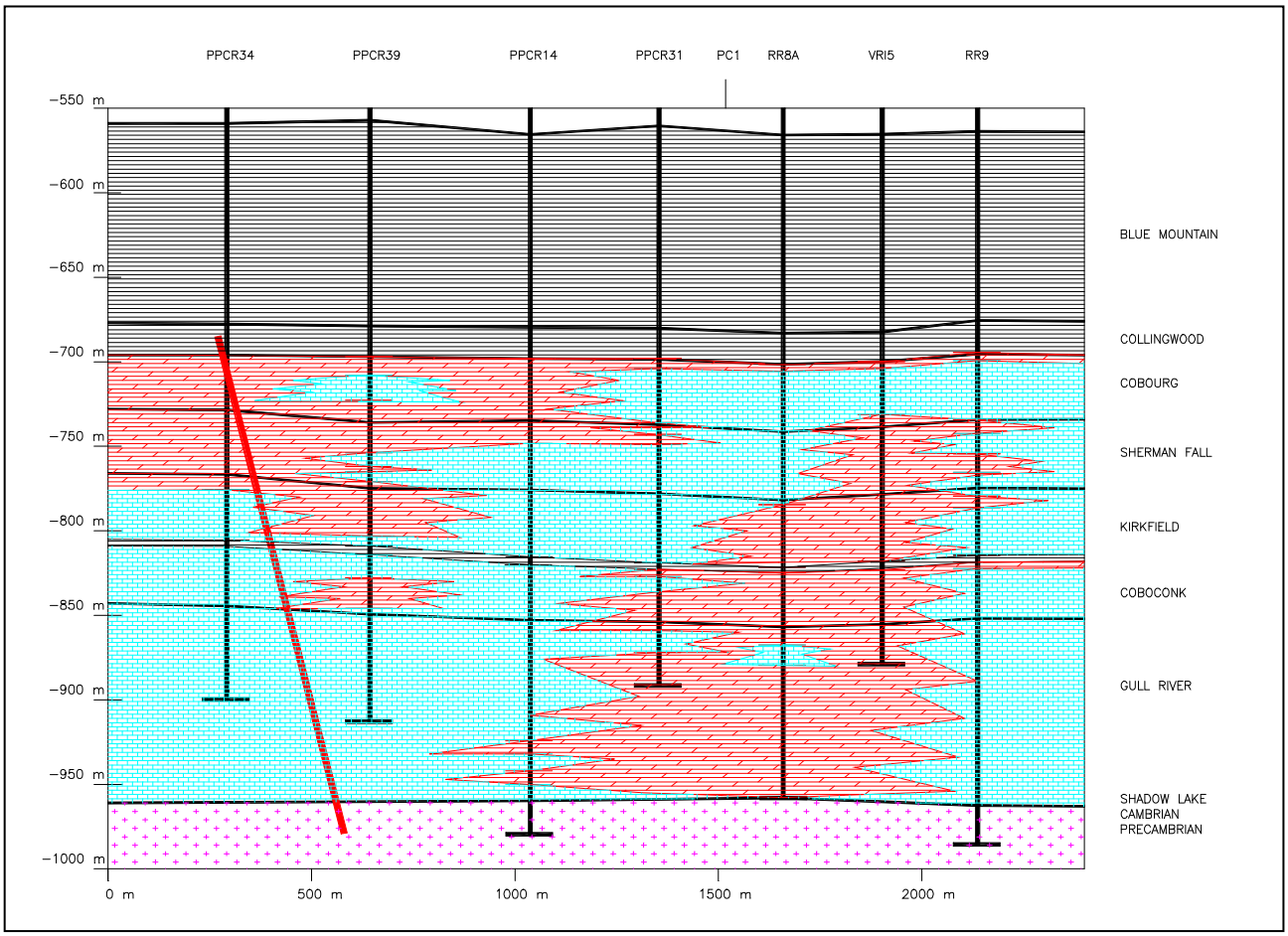


Figure 3- Cross section of the Jacob Pool. Dolomitized zones are illustrated in red.

The Jacob Pool currently contains one gas producing well, PPC34 and one observation well, RR9. There are four other active wells that penetrate the storage zone but they are related to oil production from the Black River Group below the Jacob Pool. All of these oil producing wells that penetrate the storage zone are cased and cemented through the storage zone.

The Queenston and Blue Mountain shales overlying the Jacob Pool provide a thick (~230 m), impermeable vertical seal to hydrocarbon migration. The lateral seal is provided by the tight regionally unaltered carbonate rocks of the Trenton Group.

A 5.2 km^2 3D seismic survey was acquired over the field in 1991 (Figure 4). There are also multiple 2D seismic lines of varying vintage available over the pool and a number of these have been reprocessed and incorporated into the seismic interpretation.

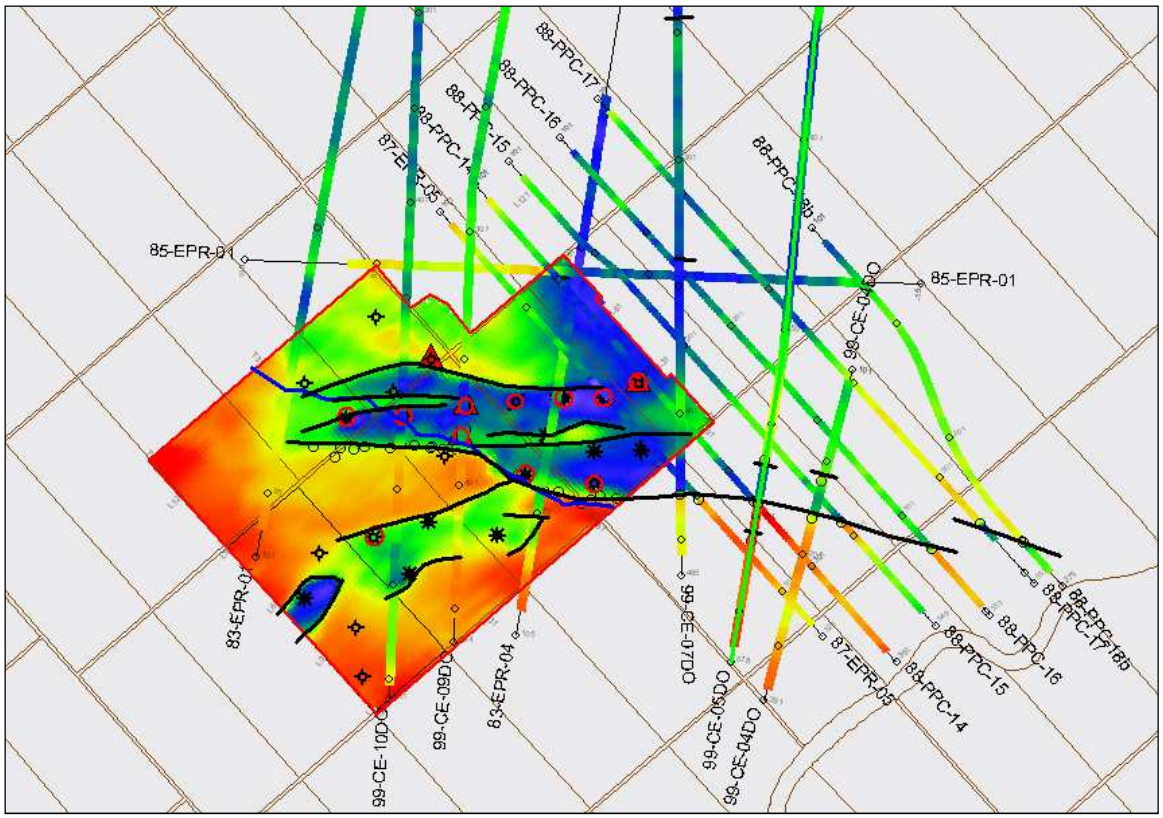


Figure 4 - Seismic coverage map showing the area of the 3D seismic survey as well as the additional 2D data that was reprocessed and incorporated into the geological model. The map also illustrates the major Trenton faults (black lines).

3. Designated Storage Area

The proposed designated storage area (DSA) was mapped with the assistance of seismic and well information and follows the MNR drilling tracts as illustrated in Figure 5. Union Gas Limited is confident that the proposed DSA is sufficient to protect the Jacob Pool.

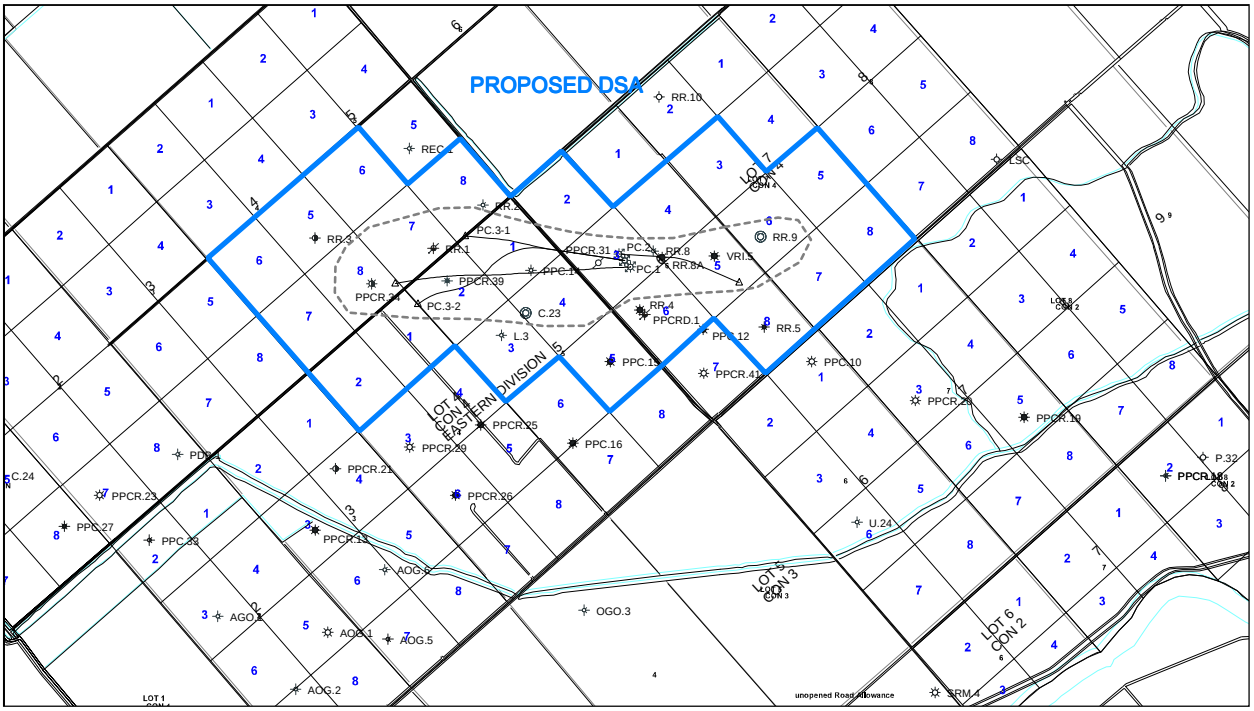


Figure 5 – Proposed Designated Storage Area.

4. Existing/Abandoned Wells within 1 Kilometre of Storage Zone

CSA Z341.1-10, Clause 7.2 (a)

A thorough evaluation of all subsurface activities and their potential impact on the integrity of the storage facility shall be conducted and shall include an assessment of

a) existing or abandoned wells within a 1 km radius of the subsurface perimeter of the storage zone, including activities such as fracture treatments that took place within the wells;

A review of the well drilling records from the Oil, Gas, and Salt Resources Library ("OGSRL") indicates that 19 wells have been drilled within a 1-kilometre radius of the storage zone for the Jacob Pool. All 19 wells were drilled to target Ordovician Formations. A map showing the location of each of these wells is provided as Figure 6. Well tickets and the Plugging Records (where applicable and available) for each of these wells are included in Appendix A.

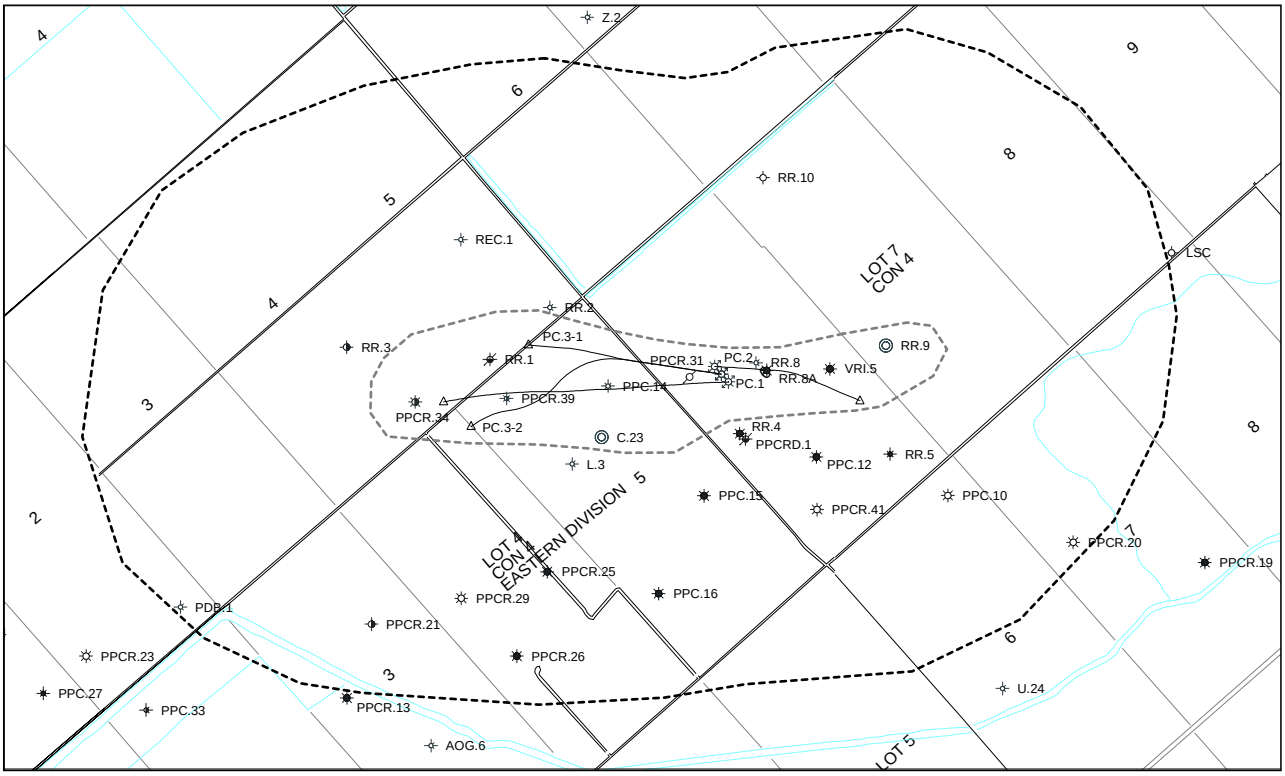


Figure 6 – Map illustrating 1 kilometre zone of investigation.

4.1 PPC 10, Dover 1 - 6 – IIIE (PPC10)

The PPC10 well was completed on December 22, 1987 and was drilled to a total depth of 1,176.0 metres. The well currently produces gas from the Sherman Fall Formation. All casing

cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	97	Cemented
Intermediate	218.95	611.8	Cemented
Production	138.94	1085	Cemented

PPC10 Well Completion Summary

4.2 PPC 12, Dover 6 - 6 – IVE (PPC12)

The PPC12 well was completed on March 10, 1988 and was drilled to a total depth of 1,081.4 metres. It currently produces oil and gas from the Coboconk Formation. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	104.5	Cemented
Intermediate	218.95	609.0	Cemented
Production	138.94	1081.0	Cemented

PPC12 Well Completion Summary

4.3 PPC 16, Dover 7 - 5 – IV (PPC16)

The PPC16 well was completed on January 19, 1988 and was drilled to a total depth of 1,070.0 metres. The well currently produces oil and gas from the Coboconk Formation. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	92.5m	Cemented
Intermediate	218.95	603.0m	Cemented
Production	138.94	1064.1m	Cemented

PPCR41 Well Completion Summary

4.4 PPC et al 15, Dover 5 - 5 – IVE (PPC15)

The PPC15 well was completed on February 23, 1988 and was drilled to a total depth of 1,067.0 metres but plugged back to 1010.0 metres. It currently produces oil and gas from the Coboconk Formation. All casing cement tops reach surface providing isolation of the

production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	102	Cemented
Intermediate	218.95	604	Cemented
Production	139.7	1066	Cemented
Tubing	72.9	1006	Hanging

PPC15 Well Completion Summary

4.5 PPC/RAM 29, Dover 3 - 4 – IVE (PPCR29)

The PPC29 well was completed on June 8, 1991 and was drilled to a total depth of 1,078.0 metres but plugged back to 1045.0 metres in September 1999. It currently produces gas from the Sherman Fall Formation. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	95	Cemented
Intermediate	218.95	597	Cemented
Production	139.7	1079	Cemented
Tubing	60.2	954.67	Hanging

PPCR41 Well Completion Summary

4.6 PPC/Ram 20, Dover 3 - 7 – IIIE (PPCR20)

The PPC20 well was completed on June 10, 1988 and was drilled to a total depth of 1,157.0 metres but plugged back to 1011.0 metres in 1988. It currently produces gas from the Cobourg Formation. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	104.5	Cemented
Intermediate	218.95	602	Cemented
Production	138.94	1157	Cemented

PPCR20 Well Completion Summary

4.7 PPC/Ram 21, Dover 4 - 3 – IV (PPCR21)

The PPC21 well was completed on January 5, 1990 and was drilled to a total depth of 1,106.0 metres. During drilling, there was a gas show in the Kirkfield and both oil and gas shows

in the Coboconk. The well was suspended until it was abandoned in June 2002. The abandonment isolates the hydrocarbon bearing formations and has sufficient plug thicknesses thus meeting the requirements of CSA Z341-10.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
945	65	Cement
870	60	Cement
810	60	Cement
774	64	Cement
717	64	Cement
660	90	Cement
443	43	Cement
349	300	Cement
120	120	Cement

PPCR21 Well Abandonment Summary

4.8 PPC/Ram 25, Dover 5 - 4 – IVE (PPCR25)

The PPC25 well was completed on September 9, 1988 and was drilled to a total depth of 1,078.2 metres. The well currently produces oil and gas from the Coboconk Formation. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

Casing String	Diameter (mm)	Set Depth (mKB)	How Set
Surface	297.94	101	Cemented
Intermediate	218.95	594	Cemented
Production	138.94	1077	Cemented

PPCR25 Well Completion Summary

4.9 Rowe/Ram No. 4, Dover 6 - 6 – IVE (RR4)

The RR4 well was completed on February 9, 1984 and was drilled to a total depth of 1,076.4 metres. It currently produces oil and gas from the Coboconk Formation. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

Casing String	Diameter (mm)	Set Depth (mKB)	How Set
Surface	244.09	80.10	Cemented
Intermediate	178.05	207.30	Cemented

Production	144.2	1068.80	Cemented
Tubing	59.94	1076.00	Hanging

RR4 Well Completion Summary

4.10 PPC/Ram 26, Dover 6 - 4 – IVE (PPCR26)

The PPC26 well was completed on December 1, 1989 and was drilled to a total depth of 1,098.5 metres. The well currently produces oil and gas from the Coboconk Formation. The well was plugged back to 1027.6 metres in November 1989. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	102.9	Cemented
Intermediate	218.95	597.3	Cemented
Production	139.95	1098.2	Cemented
Tubing	72.9	1053.3	Hanging

PPCR26 Well Completion Summary

4.11 PPC/Ram 41, Dover 7 - 6 – IVE (PPCR41)

The PPC41 well was completed on February 29, 1992 and was drilled to a total depth of 1,096.0 metres. It was plugged back to 945.0 metres in September 1999. The well currently produces gas from the Sherman Fall Formation. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	297.94	93	Cemented
Intermediate	218.95	614	Cemented
Production	139.7	1096	Cemented
Tubing	72.9	938.5	Hanging

PPCR41 Well Completion Summary

4.12 Port Dover Gas and Oil - Baska No. 1, Dover 8 - 2 – VE (PDB1)

The PDB1 well was completed on September 10, 1960 and was drilled to a total depth of 991.8 metres. During drilling there were small gas shows in both the Guelph and Kirkfield Formations but they were deemed non-producible and the well was abandoned. The abandonment

isolates the hydrocarbon bearing formations but the plug thicknesses are not sufficient to meet the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
854.96	4.57	Bridge, 8" lead plug, 6 sacs Cement
573.63	4.57	Bridge, 8" lead plug, 6 sacs Cement
492.25	4.57	Bridge, 8" lead plug, 6 sacs Cement
316.99	Unknown	10" lead plug, 10 Sacks Cement
94.49	Unknown	13" lead plug, 15 Sacks
24.38	Unknown	Bridge, stone, lead plug, 15 sacks cement

PDB1 Well Abandonment Summary

4.13 R.E.C. et al 1, Dover 5 - 5 – VE (REC1)

The REC1 well was completed on June 30, 1991 and was drilled to a total depth of 1,151.0 metres. There was a small gas show in the Sherman Fall Formation but it was deemed non-producible and the well was abandoned. The abandonment isolates the hydrocarbon bearing formations but the plug thicknesses are less than 30m. The abandonment meets the Operating Standards v2.0 requirement but does not meet the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
900	88.8	Cement
648	23.6	Cement
615	41	Cement
95	47	Cement

REC1 Well Abandonment Summary

4.14 Rowe Ram No. 10, Dover 2 - 7 – IVE (RR10)

The RR10 well was completed on May 29, 1985 and was drilled to a total depth of 1,159.0 metres. During drilling, the well did not encounter any hydrocarbon shows. The well was abandoned in June 1990. The abandonment isolates the hydrocarbon bearing formations but does not meet the cement requirements of CSA Z341 -10.

Set Depth (mKB)	Cement Amount Sacks	Plug Thickness (m)	Plug Type
1140	30	32	Cement
890	35	36	Cement
660	40	43	Cement
460	70	147	Cement

236	20	60	Cement
120	40	119	Cement

RR10 Well Abandonment Summary

4.15 Rowe-Ram #2, Dover 8 - 5 – VE (RR2)

The RR2 well was completed on February 22, 1983 and was drilled to a total depth of 1,166.8 metres. There were small gas shows encountered in the Dundee and Sherman Fall Formations during drilling. These shows were deemed non-producible and the well was abandoned in October 1986. The abandonment isolates the hydrocarbon bearing formations but does not meet the cement requirements of CSA Z341 -10.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
877.8	25.4	Cement
650.7	30.4	Cement
590	30.8	Cement
515	30	Cement
310	26.5	Cement
230	30	Cement
95	18.8	Cement

RR2 Well Abandonment Summary

4.16 Rowe-Ram No. 3, Dover 5 - 4 – VE (RR3)

The RR3 well was completed on May 14, 1983 and was drilled to a total depth of 1,160 metres. There were small oil shows in the Dundee, Guelph and Blue Mountain Formations during drilling. None of the shows were producible and the well was abandoned. The abandonment isolates the hydrocarbon bearing formations but does not meet the cement requirements of CSA Z341 -10.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
1109	30	Cement
871	35	Cement
615	35	Cement
81	45	Cement

RR3 Well Abandonment Summary

4.17 Rowe/Ram No. 5, Dover 8 - 6 – IVE (RR5)

The RR5 well was completed on June 29, 1984 and was drilled to a total depth of 1,158.0 metres. The well produced both oil and gas from the Coboconk Formation. The well was

fractured in August 1984 with 28,000 litres of 28% hydrochloric acid. The well ceased production in February 1995 and was abandoned in 2002. The abandonment isolates the hydrocarbon bearing formations but the plug thicknesses are less than 30m. The abandonment meets the Operating Standards v2.0 requirement but does not meet the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
1050.0	28.0	Cement
927.0	72.0	Cement
700.0	50.0	Cement
360.0	30.0	Cement
250.0	40.0	Cement
120.0	44.0	Cement
50.0	50.0	Cement

RR5 Well Abandonment Summary

4.18 Liberty #3, Dover 3 - 5 – IVE (L3)

The L3 well was completed on March 2, 2007 and was drilled to a total depth of 1,069.0 metres. There was a small non-producible gas show in the Kirkfield Formation and the well was abandoned immediately following drilling. The abandonment isolates the hydrocarbon bearing formations but the plug thicknesses are less than 30m. The abandonment meets the Operating Standards v2.0 requirement but does not meet the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
873	13	Cement
613	23	Cement
513	17	Cement
323	11	Cement
95	13	Cement
26	10	Cement
6	5	Cement

L3 Well Abandonment Summary

4.19 PPC/Ram Disposal 1, Dover 2-6 - 6 – IVE (PPCRD1)

The PPCRD1 well was completed on September 29, 1988 and was drilled to a total depth of 190.0 metres. The well produced a small amount of oil from 1994 to 1995. The well was

abandoned in 2002. The well abandonment has cement to surface and therefore meets the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
103	1	Cement
102	52	Cement
50	50	Cement

PPCRD1 Well Abandonment Summary

Summary

The available records for all 19 wells, within a 1 kilometre radius of the Jacob pool reservoir, were reviewed as part of this report. A total of 10 wells are active and continue to produce oil and/or gas and 9 wells have been abandoned. None of these wells are in communication with the Jacob pool.

All 10 active wells meet the requirements of CSA Z341 for casing and cement and provide isolation across all porous zones intersected by the wells. Specifically, each casing string is cemented to surface, the proper number of casing strings are installed and the appropriate weight and grade of casing is installed.

In addition, the remaining 9 wells have been abandoned in accordance with the OGSRA Operating Standard v2.0 as required by the MNR. The abandonments have the proper number of plugs and the plugs are located to isolate all porous zones.

5. Subsurface Operations within 5 Kilometres of Storage Zone

CSA Z341.1-10, Clause 7.2 (b)

A thorough evaluation of all subsurface activities and their potential impact on the integrity of the storage facility shall be conducted and shall include an assessment of

b) existing operations within a 5 km radius of the proposed storage scheme, including their purpose, mode of operation, and minimum and maximum operating pressures;

Figure 7 illustrates the location of the Jacob Pool in relation to other existing subsurface operations within a 5 km radius. Based on a search of the OGSRL records, there are three oil and/or gas production fields within the 5km zone of investigation.

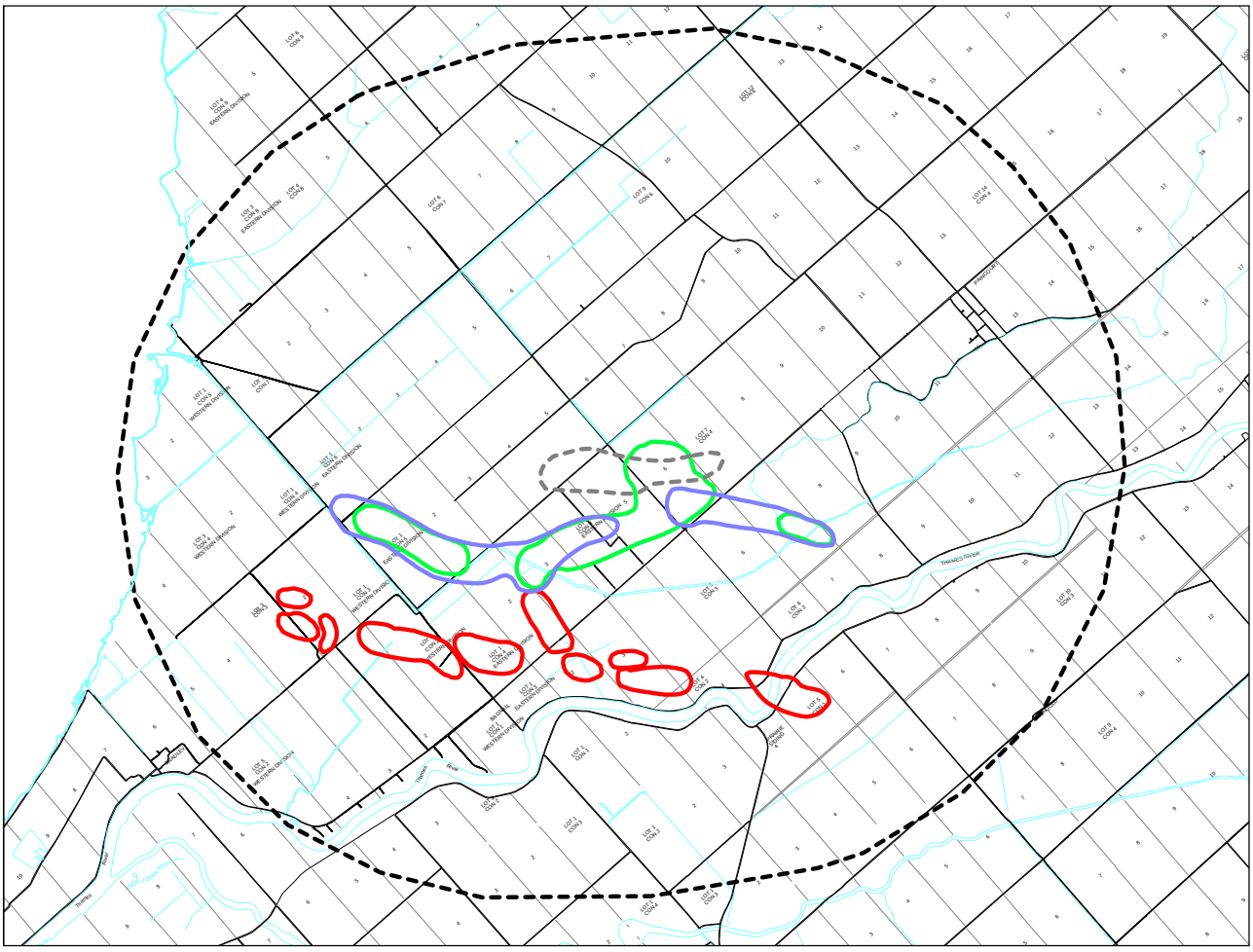


Figure 7 – Map illustrating production operations within 5 Km of the Jacob Pool. The Grey outline is the Jacob Pool, the purple outlines are the other Dover 7-5-VE gas producing reservoirs, the green outlines are the Dover 7-5-VE oil producing reservoirs and the red outlines are the Dover Pool gas producing reservoirs.

5.1. Production Operations

5.1.1. Dover 7-5-VE Gas Field (purple outlines above)

The Dover 7-5-VE gas field contains 8 active wells that produce natural gas from multiple reservoirs. The Jacob Pool is the largest of the reservoirs within the field. The other reservoirs lie just south of the Jacob Pool and have produced 276 10^6m^3 (9.76 BCF) of natural gas since 1983. Each reservoir was created in proximity to its own faults and is contained within the extents of these faults. There is no pressure communication between any of the existing reservoirs. The reservoirs are all operated independently by Liberty Oil and Gas Ltd.

5.1.2. Dover 7-5-VE Oil Field (green outlines above)

The Dover 7-5-VE oil field contains 12 active wells that produce oil from numerous reservoirs within the Black River Group. Liberty Oil and Gas Ltd. owns and operates the reservoirs. The field has produced more than 206 10^3m^3 (1.3 million barrels) of oil. There is no communication between the Trenton reservoirs of the Dover VE field and the Black River Group reservoirs (see Section 5.4 below),

5.1.3. Dover Field (red outlines above)

The Dover gas field contains 27 active wells and lies approximately 2 km south of the Jacob Pool. The field was discovered in 1917 and has produced 396.4 10^6m^3 (14 BCF) of natural gas and 44.5 10^3m^3 (280,000 barrels) of oil from the Trenton/Black River Groups.

5.2. Gas Storage Operations

There are no gas storage operations within the 5 km zone of investigation surrounding the Jacob Pool.

5.3. Other Operations

There are no other subsurface operations within the 5 km zone of investigation surrounding the Jacob Pool.

5.4 Potential Communication with Black River

Even though the Trenton and Black River reservoir groups were created by the same faulting system, there is no evidence of vertical communication between the reservoirs. The shale

marker bed at the bottom of the Kirkfield Formation has sealed, preventing the migration of fluids and hydrocarbons into the Trenton. This is evidenced by the dolomitization pattern observed within the top of the Black River Group and the gas cap retained within the Black River Group reservoirs. The fluids and/or hydrocarbons could not migrate upwards into the Trenton thus were forced laterally into the Black River and as a result, the top of the Black River Group is extensively dolomitized and contains excellent quality reservoir rocks which held the gas cap in place. There are also a number of wells in some of the other hydrocarbon producing reservoirs that have intersected faults which are completely sealed by mineralization.

The Ministry of Natural Resources – Petroleum Resources Centre allowed simultaneous production from both the Trenton and Black River reservoirs. This indicates that they had a level of comfort that there was no communication between the horizons otherwise they would have restricted production from the Trenton to maintain pressure integrity in the Black River to produce the oil. This letter is located in Appendix B.

Analysis of the Black River Group by Cairnlins Resources Ltd. has concluded that oil has been produced from multiple compartments bounded between the northern and southern faults. Compartmentalization is evident based on initial pressure and gas production pressure decline from adjacent wells; there is the possibility that three separate oil producing compartments exist in the Black River between the RR9 and PPCR14 gas wells.

In February 1992, five successful drill stem tests were performed in the nearby PPCR41 gas well. The well was perforated across selected intervals in the Coboconk, Kirkfield and Sherman Fall formations. Drill stem test results indicate that pressure communication is nonexistent between the Trenton and Black River Groups in the PPCR41 well.

Union met with Bob Cochrane of Cairnlins Resources Ltd. on February 8, 2010 to discuss the issue of potential communication between the Trenton and Black River at the eastern end of the reservoir. Cairnlins Resources is also convinced based on the evidence above that there is no communication between the Trenton and Black River reservoirs[1].

[1] Cairnlins Resources Ltd, “Reservoir Analysis of Ordovician Trenton and Black River Groups PPC Ram 41 7-6-VE Well in Dover 7-5-VE Field Dover Township, Kent County Ontario”, December 30, 1998

Summary

A review of all the available data indicates that the Jacob pool is not in communication with any adjacent Trenton reservoirs or any of the deeper Black River reservoirs. In order to assess any potential communication between the Trenton Group and the Black River Group Union will monitor pressures from wells within the area that penetrate the Trenton and Black River reservoirs. In addition, as part of the proposed project Union will recomplete the C23 well to monitor pressure in both the Trenton and Black River. Union's agreement with the operator (Liberty) allows for access to this information. Any gas loss from the Trenton to the Black River would be noticed as a pressure increase in the wells operated by Liberty.

6. Wells Penetrating the Storage Zone

CSA Z34.1-10, Clause 7.2 (c)

A thorough evaluation of all subsurface activities and their potential impact on the integrity of the storage facility shall be conducted and shall include an assessment of

c) the integrity of any existing well that penetrates the storage zone, including casing, cement, and the hydraulic isolation of the storage zone from any overlying porous zones.

There are currently eleven wells that penetrate the storage zone. Four of these wells are abandoned, one is a Trenton gas producer, two are observation wells, one is a stratigraphic test well, one is an injection well, and two are Black River producers. Each well is reviewed in detail in the following sections.

6.1 RR1

The RR1 well was completed on February 8, 1983 and was drilled to a total depth of 1,028.0 metres. The well produced 444.5 m^3 (2,796.1 barrels) of oil from the Gull River Formation before being converted to a brine disposal well. On July 6, 2006 the well was abandoned using cement plugs. The abandonment isolates the hydrocarbon bearing formations and all plugs are more then 30 m thick therefore meeting the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
992.8	990.8	Bridge
875.0	30.0	Cement
640.0	55.0	Cement
510.0	30.0	Cement
310.0	30.0	Cement
100.0	30.0	Cement

RR1 Well Abandonment Summary

6.2 PPCR34

The PPCR34 natural gas production well was completed on August 9, 1991 and was drilled to a total depth of 1,078 metres. PPCR34 currently produces gas from a fault intersected at the top of the Cobourg Formation. The PPCR34 well has produced 39,870 10^3m^3 (1.408 Bscf) of gas since 1991 and was shut-in in September 2010.

All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards. The casing profile for the PPCR34 well is summarized below:

Casing String	Diameter (mm)	Set Depth (mKB)	How Set
Surface	298.5	94.7	Cemented
Intermediate	219.1	602.0	Cemented
Production	139.7	1079.0	Cemented

PPCR34 Well Completion Summary

The PPC34 well will be converted to an injection / withdrawal well prior to storage operations.

6.3 PPCR39

The PPCR39 well was completed on May 29, 1992 and was drilled to a total depth of 1,091.0 metres in the Gull River Formation. The well was perforated in the Cobourg and Sherman Fall formations and produced 396 10^3m^3 (14 MMscf) gas. Production started in July 1992 and lasted only 5 months. On June 12, 2002 the well was abandoned using cement plugs. The abandonment isolates the hydrocarbon bearing formations but not all plug thicknesses are 30m. The abandonment meets the Operating Standards v2.0 requirement but does not meet the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
1091.0	11.0	Cement
890.0	1.0	Bridge
889.0	139.0	Cement
700.0	22.0	Cement
625.0	40.0	Cement
540.0	48.0	Cement
330.0	40.0	Cement
120.0	32.0	Cement
50.0	50.0	Cement

PPCR39 Well Abandonment Summary

6.4 PPCR14

The PPCR14 well was completed on January 14, 1988 and was drilled to a total depth of 1,159.2 metres. PPCR14 began producing gas from the Sherman Fall Formation in August, 1988 and produced 16,400 10^3m^3 (580 MMscf) of gas until the well was suspended in September 1999.

The well was abandoned in May of 2002. The abandonment isolates the hydrocarbon bearing formations but two of the plug thicknesses are less than 30m. The abandonment meets the Operating Standards v2.0 requirement but does not meet the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
970.0	30.0	Cement
842.0	20.0	Cement
700.0	43.0	Cement
615.0	27.0	Cement
540.0	63.0	Cement
120.0	43.0	Cement
50.0	50.0	Cement

PPCR14 Well Abandonment Summary

6.5 PPCR31

The PPCR31 well was completed on June 21, 1991 as an oil and gas producer from the Black River. PPCR31 was drilled to a total depth of 1,070.0 metres. The well was converted to a brine injection well in February 2008 to enhance oil production at RR8A. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

Casing String	Diameter (mm)	Set Depth (mKB)	How Set
Surface	297.94	98.5	Cemented
Intermediate	218.95	610.5	Cemented
Production	138.94	1072.0	Cemented
Tubing	73.00	1003.51	Packer

PPCR31 Well Completion Summary

6.6 RR8

The RR8 well reached a total depth of 1,052.0 metres on December 13, 1984 in the Gull River Formation. Due to technical difficulty while drilling, the well was abandoned and junked and is considered to be a lost hole by the MNR. During the abandonment, cement plugs where used to isolate potential hydrocarbon bearing formations. The abandonment was completed January 11, 1985 and meets the requirements of CSA Z341.

Set Depth (mKB)	Plug Thickness (m)	Plug Type
1052.0	242.0	Cement
525.0	65.0	Cement
365.0	65.0	Cement
134.0	54.0	Cement
18.0	15.0	Cement

RR8 Well Abandonment Summary

6.7 RR8A

The RR8A well was completed on January 18, 1985 and was drilled to a total depth of 1,136.0 metres. RR8A currently produces oil and gas from the Gull River Formation. The cement top for the production casing is 350 m below surface and therefore does not meet the requirements of the CSA Z341 standards. To meet the standards, the RR8A well will need remedial cement work completed to bring the cement to surface and then have an 88.9 mm casing run and cemented. Alternatively the well could be abandoned. A copy of the Wellview drawing for this well can be found in Appendix C. The casing profile for RR8A is summarized below:

Casing String	Diameter (mm)	Set Depth (mKB)	How Set
Surface	244.09	75.68	Cemented
Intermediate	178.05	333.51	Cemented
Production	114.05	1133.22	Cemented
Tubing	59.94	Unknown	Hanging

RR8A Well Completion Summary

6.8 VRI5

The VRI5 well was completed on November 3, 2003 and was drilled to a total depth of 1,058.8 metres. VRI5 is a Black River gas well that is currently on production. It also produced a minor amount of oil at the beginning of its production cycle. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

Casing String	Diameter (mm)	Set Depth (mKB)	How Set
Surface	298.5	104.52	Cemented
Intermediate	219.1	606.0	Cemented
Production	139.7	1059.3	Cemented

VRI5 Well Completion Summary

6.9 RR9

The RR9 well was completed on May 14, 1985 and was drilled to a total depth of 1,163.0 metres. It was originally completed as a Black River gas producer. On January 15, 1988 the well was plugged back to a depth of 987.0 metres and perforated in the Sherman Fall Formation. In February, 1988 gas production commenced from the Trenton Group. The well has produced 9,390 10^3m^3 (331.8 MMscf) of gas from the Trenton and 302 10^3m^3 (10.7 MMscf) of gas from the Black River. Production ceased in May 1999 and the well was converted to a Trenton observation well in February 2008.

The cement top for the production casing is 450m below surface; therefore RR9 does not meet the requirements of CSA Z341. To meet the standards, the RR9 well will need remedial cement work completed to bring the cement to surface prior to converting the pool to storage. The casing profile for the RR9 well is summarized below:

	Diameter	**Set Depth**	**How Set**
Casing String	(mm)	(mKB)	
Surface	244.09	103.79	Cemented
Intermediate	178.05	335.81	Cemented
Production	114.05	1035.02	Cemented
Tubing	59.94	925.91	Hanging

RR9 Well Completion Summary

The RR9 well will be converted to a Trenton observation well prior to storage operations.

6.10 CNECNR23

The CNECNR23 well was completed on September 9, 2000 and was drilled to a total depth of 1,158 metres into the PreCambrian Formation. CNECNR23 was perforated in the Gull River Formation but did not produce any oil or gas and was suspended until 2008 when it was converted to a Black River observation well. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	**Set Depth**	**How Set**
Casing String	**(mm)**	**(mKB)**	
Surface	298.5	99.0	Cemented
Intermediate	219.1	614.0	Cemented
Production	139.7	1158.0	Cemented

Tubing	72.9	1045.0	Hanging

CNECNR23 Well Completion Summary

The CNECNR23 well will be recompleted as a dual Trenton and Black River observation well prior to storage operations.

6.11 PC.1

PC.1 was drilled as a stratigraphic test well in 2010 to evaluate the reservoir characteristics utilizing horizontal well technology and to collect caprock core. It will be converted to an I/W well once the pool is designated for storage by the Ontario Energy Board. All casing cement tops reach surface providing isolation of the production zone from other porous and permeable zones meeting the requirements of the CSA Z341 standards.

	Diameter	Set Depth	How Set
Casing String	**(mm)**	**(mKB)**	
Surface	339.7	93.37	Cemented
Intermediate	244.5	607.46	Cemented
Production	177.8	924.74	Cemented

PC.1 Well Completion Summary

6.12 Proposed Wells

Three horizontal wells drilled in the Jacob Pool including PC.1, as part of the development. The other two wells will be drilled as natural gas storage wells. The location of these wells is shown in Figure 2.

Summary

All 4 abandoned wells that penetrate the reservoir were properly abandoned in accordance with the Operating Standards v2.0. Several plugs do not meet the 30 metre plug length required by CSA Z341. However, the plugs are properly located and provide isolation of all porous zones.

The nine active wells that penetrate the storage zone were reviewed against CSA Z341-10. Four wells will be used as part of storage operations (PC1, PPCR34, C23 and RR9). Remedial work is planned on these wells to ensure that they meet requirements of CSA Z341. This work will be completed prior to storage operations. The remaining 5 wells will be inspected to ensure the they are properly isolated above and below the proposed storage zone. Remedial work may be required as a result of the inspections. Union is committed to ensuring that these wells are isolated from the storage zone.

7. Conclusions and Recommendations

The Jacob Pool reservoir has excellent containment properties and will be protected by an approved DSA prior to conversion to storage. The wells and facilities will be designed, constructed, operated, maintained and abandoned in accordance with CSA Z341.1-10 Storage of Hydrocarbons in Underground Formations and in accordance with the *Oil, Gas and Salt Resources Act*, its regulations and Provincial Operating Standards.

A thorough evaluation of the existing and abandoned wells within 1 km of the storage zone, other operations within 5 km of the storage zone and existing wellbores penetrating the storage zone with respect to their potential impact on the integrity of the Jacob Pool has been completed in accordance with Clause 7.2 of CSA Z341.1-10. The technical information reviewed indicates that there is minimal risk of gas migration between any existing or abandoned wells within 1 km, or any existing subsurface operations within 5 km of the Jacob Pool. All existing wells that are completed within the Trenton Group in the storage zone will be utilized for the Jacob Pool Project.

Appendix A

CTY: Kent	**TWP:** Dover	**TRACT:** 1	**LOT:** 6	**CON:** IIIE
WELL NAME: PPC 10			**WELL ID:** T007207	**CLASS:** NPW
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** GP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE:	**LICENCE ISSUED:** 1987-12-10	**N/S BOUND:** 106.70 S	**TRAY:** 9292-93
GRND ELEV: 177.40	**SPUD DATE:**	**E/W BOUND:** 106.70 W	**POOL**
KB ELEV: 181.10	**TD DATE:** 1987-12-22	**NAD 83**	Dover 7-5-V E Pool
TVD: 1176.00 **PBTD:** 1175.00	**COMPLETE DATE:**	**SURF LAT:** 42.37127778 **SURF LONG:** -82.33050000	
	WORKOVER DATE: 1988-01-13	**BOT LAT:** 42.37127778 **BOT LONG:** -82.33050000	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	3.70	3.70	177.40
Top of Bedrock	23.20	23.20	157.90
Kettle Point	23.20	23.20	157.90
Hamilton Group	27.20	27.20	153.90
Dundee	93.00	93.00	88.10
Lucas	129.30	129.30	51.80
Amherstburg	187.00	187.00	-5.90
Bois Blanc	233.50	233.50	-52.40
Bass Islands/Bertie	271.00	271.00	-89.90
G Unit	310.20	310.20	-129.10
F Unit	317.20	317.20	-136.10
E Unit	361.60	361.60	-180.50
C Unit	390.80	390.80	-209.70
B Unit	409.00	409.00	-227.90
B Equivalent	414.90	414.90	-233.80
B Salt	422.00	422.00	-240.90
A-2 Carbonate	468.80	468.80	-287.70
A-2 Anhydrite	496.90	496.90	-315.80
A-1 Carbonate	499.30	499.30	-318.20
Guelph	510.30	510.30	-329.20
Goat Island	535.70	535.70	-354.60
Gasport	585.90	585.90	-404.80
Rochester	595.30	595.30	-414.20
Reynales/Fossil Hill	603.00	603.00	-421.90
Cabot Head	604.40	604.40	-423.30
Manitoulin	644.30	644.30	-463.20
Queenston	654.10	654.10	-473.00
Georgian Bay/Blue Mtn	748.30	748.30	-567.20
Collingwood	876.50	876.50	-695.40
Trenton Group	882.80	882.80	-701.70
Cobourg	882.80	882.80	-701.70
Sherman Fall	904.50	904.50	-723.40
Kirkfield	961.30	961.30	-780.20
Black River Group	1005.00	1005.00	-823.90
Coboconk	1005.00	1005.00	-823.90
Gull River	1038.40	1038.40	-857.30
Shadow Lake	1140.00	1140.00	-958.90
Precambrian	1149.00	1149.00	-967.90
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
916.00 - 917.00	SHOW	
925.00 - 926.00	SHOW	
943.00 - 944.00	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
15.00 - 1175.00	Compensated Neutron Formation Density	Schlumberger
15.00 - 1175.00	Gamma Ray	Schlumberger
611.90 - 1175.00	Microspherically Focussed Laterolog	Schlumberger
611.90 - 1175.00	Natural Gamma Ray	Schlumberger
611.90 - 1175.00	Dual Laterolog	Schlumberger
611.90 - 1172.50	Sonic	Schlumberger
854.00 - 1169.00	Electromagnetic Propagation	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	42.90	97.00	CEM
218.95	35.70	611.80	CEM
138.94	22.69	1085.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 6	**LOT:** 6	**CON:** IVE
WELL NAME: PPC 12			**WELL ID:** T007215	**CLASS:** NPW
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** OPGP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1988-02-23	**N/S BOUND:** 333.00 N	**TRAY:** 10157
GRND ELEV: 175.85	**SPUD DATE:**	**E/W BOUND:** 264.50 E	**POOL**
KB ELEV: 179.60	**TD DATE:** 1988-03-10	**NAD 83**	Dover 7-5-V E Pool
TVD: 1081.40 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37250000 **SURF LONG:** -82.33666667	
	WORKOVER DATE:	**BOT LAT:** 42.37250000 **BOT LONG:** -82.33666667	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	3.75	3.75	175.85
Top of Bedrock	23.00	23.00	156.60
Kettle Point	23.00	23.00	156.60
Hamilton Group	24.90	24.90	154.70
Dundee	90.00	90.00	89.60
Columbus	129.00	129.00	50.60
Lucas	144.00	144.00	35.60
Amherstburg	174.00	174.00	5.60
Bois Blanc	222.00	222.00	-42.40
Bass Islands/Bertie	258.00	258.00	-78.40
G Unit	307.10	307.10	-127.50
F Unit	313.80	313.80	-134.20
E Unit	359.20	359.20	-179.60
C Unit	388.80	388.80	-209.20
B Unit	404.90	404.90	-225.30
B Equivalent	410.80	410.80	-231.20
B Salt	417.20	417.20	-237.60
A-2 Carbonate	464.30	464.30	-284.70
A-2 Shale	487.00	487.00	-307.40
A-2 Anhydrite	493.00	493.00	-313.40
A-1 Carbonate	495.80	495.80	-316.20
Guelph	511.20	511.20	-331.60
Goat Island	534.60	534.60	-355.00
Gasport	582.70	582.70	-403.10
Rochester	593.30	593.30	-413.70
Reynales/Fossil Hill	601.00	601.00	-421.40
Cabot Head	602.70	602.70	-423.10
Manitoulin	638.10	638.10	-458.50
Queenston	651.50	651.50	-471.90
Georgian Bay/Blue Mtn	747.70	747.70	-568.10
Trenton Group	876.90	876.90	-697.30
Cobourg	876.90	876.90	-697.30
Sherman Fall	915.50	915.50	-735.90
Kirkfield	747.70	747.70	-568.10
Black River Group	1002.20	1002.20	-822.60
Coboconk	1002.20	1002.20	-822.60
Gull River	1034.80	1034.80	-855.20
Geology by Operator			

COMMENTS
Supplementary 107 to follow after 2 zones have been perfed and testing.

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
1002.00 - 1030.00	SHOW	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
10.00 - 1080.70	Gamma Ray Neutron	Schlumberger
60.00 - 1080.70	Photoelectric Effect	Schlumberger
600.00 - 1080.70	Lithodensity Tool	Schlumberger
608.00 - 1080.70	Dual Laterolog Micro SFL	Schlumberger
608.00 - 1080.70	Sonic	Schlumberger

CORE ID	TOP (m)	BOTTOM (m)	ANALYSIS
955	1005.50	1024.00	N

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.40	104.50	CEM
218.95	34.70	609.00	CEM
139.70	20.80	1081.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 5	**LOT:** 5	**CON:** IVE
WELL NAME: PPC et al 15			**WELL ID:** T007240	**CLASS:** NPW
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** OPGP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1988-02-15	**N/S BOUND:** 506.00 N	**TRAY:** 9479-80
GRND ELEV: 180.00	**SPUD DATE:**	**E/W BOUND:** 150.00 W	**POOL**
KB ELEV: 180.00	**TD DATE:** 1988-02-23	**NAD 83**	Dover 7-5-V E Pool
TVD: 1067.00 **PBTD:** 1010.00	**COMPLETE DATE:**	**SURF LAT:** 42.37111111 **SURF LONG:** -82.34180556	
	WORKOVER DATE: 1999-08-13	**BOT LAT:** 42.37111111 **BOT LONG:** -82.34180556	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	0.01	0.01	179.99
Top of Bedrock	22.50	22.50	157.50
Kettle Point	22.50	22.50	157.50
Hamilton Group	25.50	25.50	154.50
Dundee	89.20	89.20	90.80
Lucas	125.00	125.00	55.00
Amherstburg	170.00	170.00	10.00
Bois Blanc	225.00	225.00	-45.00
Bass Islands/Bertie	264.50	264.50	-84.50
G Unit	308.80	308.80	-128.80
F Unit	315.40	315.40	-135.40
E Unit	359.10	359.10	-179.10
C Unit	390.60	390.60	-210.60
B Unit	405.80	405.80	-225.80
B Equivalent	411.20	411.20	-231.20
B Salt	418.60	418.60	-238.60
A-2 Carbonate	452.00	452.00	-272.00
A-2 Shale	485.00	485.00	-305.00
A-2 Anhydrite	491.40	491.40	-311.40
A-1 Carbonate	493.90	493.90	-313.90
Guelph	510.90	510.90	-330.90
Goat Island	530.30	530.30	-350.30
Gasport	579.40	579.40	-399.40
Rochester	590.00	590.00	-410.00
Reynales/Fossil Hill	597.70	597.70	-417.70
Cabot Head	599.30	599.30	-419.30
Manitoulin	634.90	634.90	-454.90
Queenston	648.90	648.90	-468.90
Georgian Bay/Blue Mtn	741.70	741.70	-561.70
Trenton Group	871.80	871.80	-691.80
Cobourg	871.80	871.80	-691.80
Sherman Fall	908.90	908.90	-728.90
Kirkfield	950.00	950.00	-770.00
Black River Group	994.00	994.00	-814.00
Coboconk	994.00	994.00	-814.00
Gull River	1025.00	1025.00	-845.00
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
983.00 - 1002.00	SHOW	8053.00

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
983.00 - 1002.00	SHOW	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE
891.00 - 926.00		
926.00 - 968.00		
1036.00 - 1042.00		

LOGGING RECORD INTERVAL	TYPE	COMPANY
0.00 - 1066.00	Gamma Ray Neutron	Schlumberger
602.50 - 1067.00	Sonic	Schlumberger
602.50 - 1066.00	Lithodensity Tool	Schlumberger
602.50 - 1066.00	Dual Laterolog Micro SFL	Schlumberger
602.50 - 1066.00	Photoelectric Effect	Schlumberger
620.00 - 1005.50	Gamma Ray Neutron	Computalog
860.00 - 1060.00	Cyberlook	Schlumberger
950.00 - 1051.50	Gamma Ray Neutron	Computalog

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.40	102.00	CEM
218.95	34.70	604.00	CEM
199.14		994.53	
72.90	9.67	1006.75	HAN
139.70	20.80	1066.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 7	**LOT:** 5	**CON:** IV
WELL NAME: PPC 16			**WELL ID:** T007220	**CLASS:** NPW
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** OPGP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1988-01-05	**N/S BOUND:** 341.30 N	**TRAY:** 9227-28
GRND ELEV: 179.90	**SPUD DATE:**	**E/W BOUND:** 106.70 E	**POOL**
KB ELEV: 179.90	**TD DATE:** 1988-01-19	**NAD 83**	Dover 7-5-V E Pool
TVD: 1070.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.36763889 **SURF LONG:** -82.34394444	
	WORKOVER DATE:	**BOT LAT:** 42.36763889 **BOT LONG:** -82.34394444	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	0.01	0.01	179.89
Top of Bedrock	22.20	22.20	157.70
Kettle Point	22.20	22.20	157.70
Hamilton Group	25.00	25.00	154.90
Dundee	87.00	87.00	92.90
Lucas	123.00	123.00	56.90
Amherstburg	171.00	171.00	8.90
Bois Blanc	249.00	249.00	-69.10
Bass Islands/Bertie	265.00	265.00	-85.10
G Unit	311.50	311.50	-131.60
F Unit	318.80	318.80	-138.90
E Unit	362.00	362.00	-182.10
C Unit	392.10	392.10	-212.20
B Unit	407.20	407.20	-227.30
B Equivalent	412.60	412.60	-232.70
B Salt	420.60	420.60	-240.70
A-2 Carbonate	451.80	451.80	-271.90
A-2 Shale	477.30	477.30	-297.40
A-2 Anhydrite	484.30	484.30	-304.40
A-1 Carbonate	486.90	486.90	-307.00
Guelph	499.00	499.00	-319.10
Goat Island	421.40	421.40	-241.50
Gasport	471.40	471.40	-291.50
Rochester	581.80	581.80	-401.90
Reynales/Fossil Hill	589.30	589.30	-409.40
Cabot Head	590.90	590.90	-411.00
Manitoulin	626.30	626.30	-446.40
Queenston	640.50	640.50	-460.60
Georgian Bay/Blue Mtn	732.60	732.60	-552.70
Trenton Group	866.50	866.50	-686.60
Cobourg	866.50	866.50	-686.60
Sherman Fall	904.20	904.20	-724.30
Kirkfield	946.90	946.90	-767.00
Coboconk	991.30	991.30	-811.40
Gull River	1023.30	1023.30	-843.40
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
1012.00 - 1015.00	SHOW	
1020.00 - 1023.50	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
1012.00 - 1015.00	SHOW	
1020.00 - 1023.50	SHOW	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
15.00 - 1069.30	Gamma Ray Neutron	Schlumberger
550.00 - 1041.00	Cement Bond/Variable Density	Schlumberger
598.00 - 1069.30	Lithodensity Tool	Schlumberger
598.00 - 1069.30	Photoelectric Effect	Schlumberger
603.00 - 1069.70	Dual Laterolog Micro SFL	Schlumberger
603.00 - 1069.30	Natural Gamma Ray	Schlumberger
1000.00 - 1035.00	Completion/Perforation	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.50	92.50	CEM
218.95	35.70	603.00	CEM
139.70	21.50	1064.10	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 3	**LOT:** 7	**CON:** IIIE
WELL NAME: PPC/Ram 20			**WELL ID:** T007321	**CLASS:** NPW
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** GP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1988-05-31	**N/S BOUND:** 563.00 S	**TRAY:** 9515-16
GRND ELEV: 176.65	**SPUD DATE:**	**E/W BOUND:** 138.50 E	**POOL**
KB ELEV: 180.40	**TD DATE:** 1988-06-10	**NAD 83**	Dover 7-5-V E Pool
TVD: 1157.00 **PBTD:** 1011.00	**COMPLETE DATE:**	**SURF LAT:** 42.36969444 **SURF LONG:** -82.32458333	
	WORKOVER DATE:	**BOT LAT:** 42.36969444 **BOT LONG:** -82.32458333	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	3.75	3.75	176.65
Top of Bedrock	23.60	23.60	156.80
Kettle Point	23.60	23.60	156.80
Hamilton Group	33.60	33.60	146.80
Dundee	93.20	93.20	87.20
Columbus	134.00	134.00	46.40
Lucas	143.00	143.00	37.40
Amherstburg	180.00	180.00	0.40
Bois Blanc	233.00	233.00	-52.60
Bass Islands/Bertie	269.00	269.00	-88.60
G Unit	312.40	312.40	-132.00
F Unit	319.10	319.10	-138.70
E Unit	363.30	363.30	-182.90
C Unit	392.80	392.80	-212.40
B Unit	411.40	411.40	-231.00
B Equivalent	417.00	417.00	-236.60
B Salt	425.40	425.40	-245.00
A-2 Carbonate	460.20	460.20	-279.80
A-2 Shale	484.20	484.20	-303.80
A-2 Anhydrite	490.60	490.60	-310.20
A-1 Carbonate	493.10	493.10	-312.70
Guelph	504.70	504.70	-324.30
Goat Island	528.70	528.70	-348.30
Gasport	579.30	579.30	-398.90
Rochester	588.80	588.80	-408.40
Reynales/Fossil Hill	596.20	596.20	-415.80
Cabot Head	597.80	597.80	-417.40
Manitoulin	633.40	633.40	-453.00
Queenston	646.70	646.70	-466.30
Georgian Bay/Blue Mtn	740.30	740.30	-559.90
Trenton Group	866.10	866.10	-685.70
Cobourg	866.10	866.10	-685.70
Sherman Fall	904.20	904.20	-723.80
Kirkfield	946.20	946.20	-765.80
Black River Group	988.80	988.80	-808.40
Coboconk	988.80	988.80	-808.40
Gull River	1019.30	1019.30	-838.90
Shadow Lake	1132.50	1132.50	-952.10
Precambrian	1137.00	1137.00	-956.60
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
10.00 - 1157.00	Gamma Ray Neutron	Schlumberger
575.00 - 1077.20	Cement Bond	Atlas
602.00 - 1157.00	Lithodensity Tool	Schlumberger
602.00 - 1157.00	Photoelectric Effect	Schlumberger
602.00 - 1156.00	Dual Laterolog Micro SFL	Schlumberger
602.00 - 1153.00	Sonic	Schlumberger
850.00 - 1150.00	Electromagnetic Propagation	Schlumberger
850.00 - 919.80	Casing Collar Locator	Atlas

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	42.90	104.50	CEM
218.95	35.70	602.00	CEM
138.94	22.69	1157.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 4	**LOT:** 3	**CON:** IV
WELL NAME: PPC/Ram 21			**WELL ID:** T007548	**CLASS:** DEV
OPERATOR: Columbia Natural Resources Canada Limited	**Target:** ORD		**STATUS:** OS - ABD	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1989-12-01	**N/S BOUND:** 421.50 S	**TRAY:**
GRND ELEV: 175.10	**SPUD DATE:**	**E/W BOUND:** 187.50 W	**POOL**
KB ELEV: 179.50	**TD DATE:** 1990-01-05	**NAD 83**	
TVD: 1106.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.36647222 **SURF LONG:** -82.35736111	
	WORKOVER DATE:	**BOT LAT:** 42.36647222 **BOT LONG:** -82.35736111	
	PLUG DATE: 2002-06-15		

FORMATION	TOP	TVD	ELEV
Drift	4.39	4.39	175.11
Top of Bedrock	23.00	23.00	156.50
Kettle Point	23.00	23.00	156.50
Hamilton Group	31.50	31.50	148.00
Dundee	96.90	96.90	82.60
Lucas	126.60	126.60	52.90
Amherstburg	192.20	192.20	-12.70
Bois Blanc	242.60	242.60	-63.10
Bass Islands/Bertie	275.00	275.00	-95.50
G Unit	327.20	327.20	-147.70
F Unit	334.00	334.00	-154.50
E Unit	363.00	363.00	-183.50
D Unit	406.00	406.00	-226.50
C Unit	410.00	410.00	-230.50
B Unit	425.10	425.10	-245.60
B Equivalent	431.00	431.00	-251.50
B Anhydrite	441.20	441.20	-261.70
A-2 Carbonate	446.30	446.30	-266.80
A-2 Anhydrite	480.80	480.80	-301.30
A-1 Carbonate	483.00	483.00	-303.50
Guelph	497.20	497.20	-317.70
Goat Island	519.30	519.30	-339.80
Gasport	561.80	561.80	-382.30
Rochester	575.30	575.30	-395.80
Reynales/Fossil Hill	583.10	583.10	-403.60
Cabot Head	584.80	584.80	-405.30
Manitoulin	620.30	620.30	-440.80
Queenston	634.50	634.50	-455.00
Georgian Bay/Blue Mtn	720.40	720.40	-540.90
Collingwood	839.70	839.70	-660.20
Trenton Group	858.80	858.80	-679.30
Cobourg	858.80	858.80	-679.30
Sherman Fall	898.00	898.00	-718.50
Kirkfield	938.50	938.50	-759.00
Coboconk	983.00	983.00	-803.50
Gull River	1016.00	1016.00	-836.50
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
959.00 - 964.00		
999.00 - 1002.00		

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
999.00 - 1002.00		

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
31.00 - 1104.00	Lithodensity Tool	Schlumberger
31.00 - 1104.00	Gamma Ray Neutron	Schlumberger
593.50 - 1101.00	Dual Laterolog Micro SFL	Schlumberger
593.50 - 1093.00	Sonic	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.99	99.00	CEM
218.95	36.00	594.50	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 5	**LOT:** 4	**CON:** IVE
WELL NAME: PPC/Ram 25			**WELL ID:** T007387	**CLASS:** DEV
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** OPGP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1988-08-31	**N/S BOUND:** 689.00 N	**TRAY:** 9489-90
GRND ELEV: 175.60	**SPUD DATE:**	**E/W BOUND:** 150.00 W	**POOL**
KB ELEV: 179.10	**TD DATE:** 1988-09-09	**NAD 83**	Dover 7-5-V E Pool
TVD: 1078.20 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.36850056 **SURF LONG:** -82.34900694	
	WORKOVER DATE: 1989-12-07	**BOT LAT:** 42.36850056 **BOT LONG:** -82.34900694	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	3.50	3.50	175.60
Top of Bedrock	36.00	36.00	143.10
Hamilton Group	36.00	36.00	143.10
Dundee	86.30	86.30	92.80
Columbus	125.00	125.00	54.10
Lucas	137.00	137.00	42.10
Amherstburg	170.00	170.00	9.10
Bois Blanc	227.00	227.00	-47.90
Bass Islands/Bertie	269.00	269.00	-89.90
G Unit	312.00	312.00	-132.90
F Unit	319.00	319.00	-139.90
E Unit	364.00	364.00	-184.90
C Unit	395.00	395.00	-215.90
B Unit	410.00	410.00	-230.90
B Equivalent	415.50	415.50	-236.40
B Salt	423.20	423.20	-244.10
B Anhydrite	453.40	453.40	-274.30
A-2 Carbonate	456.30	456.30	-277.20
A-2 Anhydrite	483.80	483.80	-304.70
A-1 Carbonate	486.40	486.40	-307.30
Guelph	501.40	501.40	-322.30
Goat Island	521.40	521.40	-342.30
Gasport	569.00	569.00	-389.90
Rochester	579.30	579.30	-400.20
Reynales/Fossil Hill	587.00	587.00	-407.90
Cabot Head	588.90	588.90	-409.80
Manitoulin	624.00	624.00	-444.90
Queenston	637.10	637.10	-458.00
Georgian Bay/Blue Mtn	730.40	730.40	-551.30
Trenton Group	862.40	862.40	-683.30
Cobourg	862.40	862.40	-683.30
Sherman Fall	901.70	901.70	-722.60
Kirkfield	941.50	941.50	-762.40
Black River Group	986.00	986.00	-806.90
Coboconk	986.00	986.00	-806.90
Gull River	1017.40	1017.40	-838.30
Geology by Operator			

COMMENTS
Top of bedrock based on logs (SK 12.5.06).

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
1046.00 -	SHOW	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
35.00 - 1077.50	Gamma Ray Neutron	Schlumberger
550.00 - 1053.00	Cement Bond/Variable Density	Schlumberger
590.00 - 1077.50	Lithodensity Tool	Schlumberger
590.00 - 1077.50	Photoelectric Effect	Schlumberger
594.00 - 1074.60	Sonic	Schlumberger
594.00 - 1073.60	Dual Laterolog Micro SFL	Schlumberger
594.00 - 1072.60	Electromagnetic Propagation	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.50	101.00	CEM
218.95	35.70	594.00	CEM
138.94	22.69	1077.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 6	**LOT:** 4	**CON:** IVE
WELL NAME: PPC/Ram 26			**WELL ID:** T007527	**CLASS:** DEV
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** OPGP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1989-10-05	**N/S BOUND:** 523.00 N	**TRAY:** 10030-31
GRND ELEV: 175.90	**SPUD DATE:**	**E/W BOUND:** 150.00 E	**POOL**
KB ELEV: 180.30	**TD DATE:** 1989-12-01	**NAD 83**	Dover 7-5-V E Pool
TVD: 1098.50 **PBTD: 1027.60**	**COMPLETE DATE:**	**SURF LAT:** 42.36538889 **SURF LONG:** -82.35050000	
	WORKOVER DATE: 2006-10-16	**BOT LAT:** 42.36538889 **BOT LONG:** -82.35050000	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	4.39	4.39	175.91
Top of Bedrock	23.60	23.60	156.70
Kettle Point	23.60	23.60	156.70
Hamilton Group	31.00	31.00	149.30
Dundee	91.00	91.00	89.30
Lucas	126.00	126.00	54.30
Amherstburg	189.00	189.00	-8.70
Bois Blanc	231.00	231.00	-50.70
Bass Islands/Bertie	237.00	237.00	-56.70
G Unit	320.20	320.20	-139.90
F Unit	327.10	327.10	-146.80
E Unit	372.40	372.40	-192.10
C Unit	401.00	401.00	-220.70
B Unit	416.60	416.60	-236.30
B Equivalent	422.00	422.00	-241.70
B Anhydrite	430.00	430.00	-249.70
A-2 Carbonate	449.00	449.00	-268.70
A-2 Shale	476.00	476.00	-295.70
A-2 Anhydrite	482.80	482.80	-302.50
A-1 Carbonate	485.60	485.60	-305.30
Guelph	495.80	495.80	-315.50
Goat Island	519.80	519.80	-339.50
Gasport	567.00	567.00	-386.70
Rochester	578.40	578.40	-398.10
Reynales/Fossil Hill	586.00	586.00	-405.70
Cabot Head	587.60	587.60	-407.30
Manitoulin	627.30	627.30	-447.00
Queenston	637.00	637.00	-456.70
Georgian Bay/Blue Mtn	729.00	729.00	-548.70
Trenton Group	863.80	863.80	-683.50
Cobourg	863.80	863.80	-683.50
Sherman Fall	902.40	902.40	-722.10
Kirkfield	945.30	945.30	-765.00
Black River Group	989.20	989.20	-808.90
Coboconk	989.20	989.20	-808.90
Gull River	1022.80	1022.80	-842.50
Geology by Operator			

COMMENTS
perforated from 1041 to 1043mKB with 13 SPM

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
904.00 -		
970.00 -	SHOW	
992.00 -	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
992.00 -	SHOW	
1044.00 -	SHOW	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE
20.00 -		Fresh
1087.50 -	0.00	Loss of circ.

LOGGING RECORD INTERVAL	TYPE	COMPANY
5.00 - 1097.20	Lithodensity Tool	Schlumberger
541.00 - 1078.50	Cement Bond/Variable Density	Atlas
596.00 - 1097.20	Dual Laterolog Micro SFL	Schlumberger
596.00 - 1097.20	Sonic	Schlumberger
825.00 - 1026.00	Casing Collar Locator	Computalog
848.00 - 1049.80	Completion/Perforation	Computalog
850.00 - 1092.00		Schlumberger
850.00 - 1078.50	Cement Bond/Variable Density	Atlas
974.00 - 1053.00	Completion/Perforation	Weatherford

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	60.00	102.90	CEM
218.95	36.00	597.30	CEM
19.05		1043.27	
72.90	9.67	1053.30	
139.95	21.00	1098.20	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 3	**LOT:** 4	**CON:** IVE
WELL NAME: PPC/RAM 29			**WELL ID:** T007793	**CLASS:** DEV
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** GP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1991-05-28	**N/S BOUND:** 571.80 S	**TRAY:** 10211-12
GRND ELEV: 175.50	**SPUD DATE:**	**E/W BOUND:** 137.90 E	**POOL**
KB ELEV: 179.00	**TD DATE:** 1991-06-08	**NAD 83**	Dover 7-5-V E Pool
TVD: 1078.00 **PBTD:** 1045.00	**COMPLETE DATE:**	**SURF LAT:** 42.36744444 **SURF LONG:** -82.35322222	
	WORKOVER DATE: 1999-10-12	**BOT LAT:** 42.36744444 **BOT LONG:** -82.35322222	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	3.49	3.49	175.51
Top of Bedrock	28.00	28.00	151.00
Hamilton Group	28.00	28.00	151.00
Dundee	88.70	88.70	90.30
Lucas	117.80	117.80	61.20
Amherstburg	183.60	183.60	-4.60
Bois Blanc	232.60	232.60	-53.60
Bass Islands/Bertie	265.60	265.60	-86.60
G Unit	318.20	318.20	-139.20
F Unit	325.20	325.20	-146.20
E Unit	353.90	353.90	-174.90
D Unit	397.10	397.10	-218.10
C Unit	400.80	400.80	-221.80
B Unit	417.00	417.00	-238.00
B Salt	422.70	422.70	-243.70
B Anhydrite	430.10	430.10	-251.10
A-2 Carbonate	450.40	450.40	-271.40
A-2 Anhydrite	484.00	484.00	-305.00
A-1 Carbonate	487.00	487.00	-308.00
Guelph	496.30	496.30	-317.30
Goat Island	522.10	522.10	-343.10
Gasport	567.70	567.70	-388.70
Rochester	579.50	579.50	-400.50
Reynales/Fossil Hill	587.00	587.00	-408.00
Cabot Head	588.40	588.40	-409.40
Manitoulin	624.30	624.30	-445.30
Queenston	638.40	638.40	-459.40
Georgian Bay/Blue Mtn	722.90	722.90	-543.90
Collingwood	846.00	846.00	-667.00
Trenton Group	865.90	865.90	-686.90
Cobourg	865.90	865.90	-686.90
Sherman Fall	904.30	904.30	-725.30
Kirkfield	943.40	943.40	-764.40
Black River Group	988.00	988.00	-809.00
Coboconk	988.00	988.00	-809.00
Gull River	1020.30	1020.30	-841.30
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
909.00 -	SHOW	
937.00 - 939.00	SHOW	
945.00 - 947.00	SHOW	
988.00 - 992.00	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
988.00 - 992.00	SHOW	
1007.00 -	SHOW	
1011.00 - 1015.00	SHOW	
1035.00 - 1049.00	SHOW	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
25.00 - 1077.00	Compensated Neutron	Schlumberger
25.00 - 1077.00	Lithodensity Tool	Schlumberger
61.00 - 597.00	Cement Bond/Variable Density	Schlumberger
597.00 - 1077.00	Dual Laterolog Micro SFL	Schlumberger
597.00 - 1066.00	Sonic	Schlumberger
597.00 - 1065.00	Electromagnetic Propagation	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.50	95.00	CEM
218.95	35.70	597.00	CEM
60.20	6.99	954.67	HAN
139.70	23.01	1079.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 7	**LOT:** 6	**CON:** IVE
WELL NAME: PPC/Ram 41			**WELL ID:** T007857	**CLASS:** DEV
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** GP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1992-02-11	**N/S BOUND:** 180.30 N	**TRAY:** 10294-95
GRND ELEV: 176.30	**SPUD DATE:**	**E/W BOUND:** 130.90 E	**POOL**
KB ELEV: 180.70	**TD DATE:** 1992-02-29	**NAD 83**	Dover 7-5-V E Pool
TVD: 1096.00 **PBTD: 945.00**	**COMPLETE DATE:**	**SURF LAT:** 42.37066667 **SURF LONG:** -82.33661111	
	WORKOVER DATE: 1999-09-10	**BOT LAT:** 42.37066667 **BOT LONG:** -82.33661111	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	4.40	4.40	176.30
Hamilton Group	45.00	45.00	135.70
Dundee	94.00	94.00	86.70
Lucas	129.50	129.50	51.20
Amherstburg	187.70	187.70	-7.00
Bois Blanc	235.30	235.30	-54.60
Bass Islands/Bertie	274.00	274.00	-93.30
G Unit	311.60	311.60	-130.90
F Unit	318.30	318.30	-137.60
E Unit	345.90	345.90	-165.20
D Unit	383.80	383.80	-203.10
C Unit	391.30	391.30	-210.60
B Unit	406.30	406.30	-225.60
B Salt	419.30	419.30	-238.60
B Anhydrite	460.00	460.00	-279.30
A-2 Carbonate	464.70	464.70	-284.00
A-2 Anhydrite	494.70	494.70	-314.00
A-1 Carbonate	497.20	497.20	-316.50
Guelph	512.80	512.80	-332.10
Goat Island	534.20	534.20	-353.50
Gasport	582.00	582.00	-401.30
Rochester	593.00	593.00	-412.30
Reynales/Fossil Hill	600.90	600.90	-420.20
Cabot Head	602.40	602.40	-421.70
Manitoulin	633.30	633.30	-452.60
Queenston	652.00	652.00	-471.30
Georgian Bay/Blue Mtn	738.40	738.40	-557.70
Collingwood	856.20	856.20	-675.50
Trenton Group	877.00	877.00	-696.30
Cobourg	877.00	877.00	-696.30
Sherman Fall	899.10	899.10	-718.40
Kirkfield	954.20	954.20	-773.50
Black River Group	992.00	992.00	-811.30
Coboconk	992.00	992.00	-811.30
Gull River	1026.00	1026.00	-845.30
Geology by Operator			

COMMENTS
No top of bedrock identifiable based on logs (SK 12.5.06).

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
45.00 - 1095.00	Compensated Neutron	Schlumberger
45.00 - 1095.00	Lithodensity Tool	Schlumberger
45.00 - 1071.00	Cement Bond/Variable Density	Schlumberger
614.00 - 1095.00	Dual Laterolog Micro SFL	Schlumberger
614.00 - 1084.00	Sonic	Schlumberger
755.00 - 985.00	Completion/Perforation	Computalog
860.00 - 1010.00	Casing Collar Locator	Computalog
877.00 - 1093.00	Cyberlook	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.50	93.00	CEM
218.95	35.70	614.00	CEM
72.90	9.67	938.50	HAN
139.70	23.10	1096.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 8	**LOT:** 5	**CON:** VE
WELL NAME: Rowe-Ram #2			**WELL ID:** T006103	**CLASS:** DEV
OPERATOR: Talisman Energy Inc.	**Target:** ORD		**STATUS:** GS - ABD	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary & Cable	**LICENCE ISSUED:** 1983-02-08	**N/S BOUND:** 45.00 N	**TRAY:** 7840-41
GRND ELEV: 175.10	**SPUD DATE:**	**E/W BOUND:** 109.70 W	**POOL**
KB ELEV: 176.90	**TD DATE:** 1983-02-22	**NAD 83**	
TVD: 1166.80 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37758333 **SURF LONG:** -82.34913889	
	WORKOVER DATE:	**BOT LAT:** 42.37758333 **BOT LONG:** -82.34913889	
	PLUG DATE: 1986-10-21		

FORMATION	TOP	TVD	ELEV
Drift	1.79	1.79	175.11
Top of Bedrock	25.40	25.40	151.50
Hamilton Group	25.40	25.40	151.50
Dundee	84.40	84.40	92.50
Lucas	119.80	119.80	57.10
Amherstburg	188.40	188.40	-11.50
Bois Blanc	228.30	228.30	-51.40
Bass Islands/Bertie	262.50	262.50	-85.60
G Unit	305.50	305.50	-128.60
F Unit	312.40	312.40	-135.50
E Unit	344.60	344.60	-167.70
C Unit	387.40	387.40	-210.50
B Unit	401.60	401.60	-224.70
B Salt	413.00	413.00	-236.10
B Anhydrite	453.60	453.60	-276.70
A-2 Carbonate	456.00	456.00	-279.10
A-2 Anhydrite	487.80	487.80	-310.90
A-1 Carbonate	490.60	490.60	-313.70
Guelph	501.40	501.40	-324.50
Goat Island	559.30	559.30	-382.40
Gasport	575.00	575.00	-398.10
Rochester	586.70	586.70	-409.80
Reynales/Fossil Hill	594.30	594.30	-417.40
Cabot Head	596.00	596.00	-419.10
Manitoulin	626.30	626.30	-449.40
Queenston	644.70	644.70	-467.80
Georgian Bay/Blue Mtn	731.00	731.00	-554.10
Trenton Group	866.60	866.60	-689.70
Cobourg	866.60	866.60	-689.70
Sherman Fall	906.50	906.50	-729.60
Kirkfield	946.70	946.70	-769.80
Black River Group	990.10	990.10	-813.20
Coboconk	990.10	990.10	-813.20
Gull River	1022.90	1022.90	-846.00
Shadow Lake	1133.50	1133.50	-956.60
Cambrian	1136.30	1136.30	-959.40
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
93.00 -	SHOW	
905.00 - 914.00	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
22.00 - 1152.00	Compensated Neutron Formation Density	Schlumberger
215.00 - 1152.00	Dual Laterolog	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
340.11	71.40	21.01	SHO
244.09	53.90	88.90	CEM
178.05	29.90	215.45	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 5	**LOT:** 4	**CON:** VE
WELL NAME: Rowe-Ram No.3			**WELL ID:** T006247	**CLASS:** DEV
OPERATOR: Talisman Energy Inc.	**Target:** ORD		**STATUS:** OS - ABD	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1983-05-12	**N/S BOUND:** 442.60 N	**TRAY:** 8557-58
GRND ELEV: 174.93	**SPUD DATE:**	**E/W BOUND:** 195.00 W	**POOL**
KB ELEV: 176.70	**TD DATE:** 1983-05-14	**NAD 83**	
TVD: 1160.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37605556 **SURF LONG:** -82.35866667	
	WORKOVER DATE:	**BOT LAT:** 42.37605556 **BOT LONG:** -82.35866667	
	PLUG DATE: 1983-05-18		

FORMATION	TOP	TVD	ELEV
Drift	1.76	1.76	174.94
Dundee	86.50	86.50	90.20
Lucas	138.00	138.00	38.70
Amherstburg	181.00	181.00	-4.30
Bois Blanc	211.00	211.00	-34.30
Bass Islands/Bertie	263.00	263.00	-86.30
G Unit	309.00	309.00	-132.30
F Unit	315.00	315.00	-138.30
E Unit	364.00	364.00	-187.30
B Unit	394.00	394.00	-217.30
B Salt	446.00	446.00	-269.30
B Anhydrite	461.00	461.00	-284.30
A-2 Carbonate	470.00	470.00	-293.30
A-2 Anhydrite	489.00	489.00	-312.30
A-1 Carbonate	492.00	492.00	-315.30
Guelph	503.50	503.50	-326.80
Goat Island	559.00	559.00	-382.30
Gasport	574.00	574.00	-397.30
Rochester	596.00	596.00	-419.30
Reynales/Fossil Hill	598.00	598.00	-421.30
Cabot Head	602.00	602.00	-425.30
Manitoulin	635.00	635.00	-458.30
Queenston	638.00	638.00	-461.30
Georgian Bay/Blue Mtn	727.00	727.00	-550.30
Trenton Group	862.00	862.00	-685.30
Cobourg	862.00	862.00	-685.30
Sherman Fall	906.50	906.50	-729.80
Kirkfield	944.60	944.60	-767.90
Black River Group	990.30	990.30	-813.60
Coboconk	990.30	990.30	-813.60
Gull River	1024.10	1024.10	-847.40
Shadow Lake	1133.10	1133.10	-956.40
Cambrian	1133.80	1133.80	-957.10
Precambrian	1136.30	1136.30	-959.60
Geology by Operator			

COMMENTS
No identifiable top of bedrock based on logs (SK 12.5.06).

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
137.00 -	SHOW	
503.50 -	SHOW	
838.20 -	SHOW	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
244.09	53.50	84.10	CEM
178.05	29.90	602.60	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 6	**LOT:** 6	**CON:** IVE
WELL NAME: Rowe/Ram No.4			**WELL ID:** T006437	**CLASS:** NPW
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** OPGP - ACT	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1984-02-07	**N/S BOUND:** 790.00 S	**TRAY:** 6492
GRND ELEV: 176.05	**SPUD DATE:**	**E/W BOUND:** 106.60 E	**POOL**
KB ELEV: 177.90	**TD DATE:** 1984-02-09	**NAD 83**	Dover 7-5-V E Pool
TVD: 1076.40 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37336111 **SURF LONG:** -82.34036111	
	WORKOVER DATE: 1996-08-27	**BOT LAT:** 42.37336111 **BOT LONG:** -82.34036111	
	PLUG DATE:		

FORMATION	TOP	TVD	ELEV
Drift	1.85	1.85	176.05
Dundee	93.00	93.00	84.90
Lucas	120.00	120.00	57.90
Amherstburg	176.80	176.80	1.10
Bois Blanc	205.60	205.60	-27.70
Bass Islands/Bertie	263.30	263.30	-85.40
G Unit	305.20	305.20	-127.30
F Unit	311.80	311.80	-133.90
E Unit	343.80	343.80	-165.90
C Unit	385.80	385.80	-207.90
B Unit	402.00	402.00	-224.10
B Salt	414.00	414.00	-236.10
B Anhydrite	463.70	463.70	-285.80
A-2 Carbonate	465.50	465.50	-287.60
A-2 Anhydrite	492.80	492.80	-314.90
A-1 Carbonate	495.60	495.60	-317.70
Guelph	506.20	506.20	-328.30
Goat Island	567.00	567.00	-389.10
Gasport	581.20	581.20	-403.30
Rochester	591.30	591.30	-413.40
Reynales/Fossil Hill	599.00	599.00	-421.10
Cabot Head	600.70	600.70	-422.80
Manitoulin	640.20	640.20	-462.30
Queenston	650.30	650.30	-472.40
Georgian Bay/Blue Mtn	742.80	742.80	-564.90
Trenton Group	873.30	873.30	-695.40
Cobourg	873.30	873.30	-695.40
Sherman Fall	912.60	912.60	-734.70
Kirkfield	954.20	954.20	-776.30
Coboconk	998.20	998.20	-820.30
Gull River	1031.00	1031.00	-853.10
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
1016.00 - 1031.00	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag
1016.00 - 1031.00	9.50	

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
197.00 - 1063.20	Compensated Neutron Formation Density	Schlumberger
869.00 - 1045.20	Gamma Ray	Schlumberger
870.00 - 1045.00		Schlumberger
870.00 - 1045.00		Schlumberger
980.00 - 1040.00	Completion/Perforation	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
244.09	54.01	80.10	CEM
178.05	25.00	207.30	CEM
144.02	14.00	1068.80	CEM
59.94		1076.00	HAN

CTY: Kent **TWP:** Dover **TRACT:** 8 **LOT:** 6 **CON:** IVE
WELL NAME: Rowe/Ram No. 5 **WELL ID:** T006533 **CLASS:** DEV
OPERATOR: Columbia Natural Resources Canada Limited **Target:** ORD **STATUS:** OPGP - ABD

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1984-06-25	**N/S BOUND:** 151.50 N	**TRAY:** 6500-01
GRND ELEV: 176.80	**SPUD DATE:**	**E/W BOUND:** 155.90 W	**POOL**
KB ELEV: 178.80	**TD DATE:** 1984-06-29	**NAD 83**	Dover 7-5-V E Pool
TVD: 1158.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37263889 **SURF LONG:** -82.33311111	
	WORKOVER DATE:	**BOT LAT:** 42.37263889 **BOT LONG:** -82.33311111	
	PLUG DATE: 2002-06-13		

FORMATION	TOP	TVD	ELEV
Drift	2.00	2.00	176.80
Dundee	93.00	93.00	85.80
Lucas	123.50	123.50	55.30
Amherstburg	183.00	183.00	-4.20
Bois Blanc	227.90	227.90	-49.10
Bass Islands/Bertie	261.70	261.70	-82.90
G Unit	308.40	308.40	-129.60
F Unit	315.30	315.30	-136.50
E Unit	347.10	347.10	-168.30
C Unit	388.60	388.60	-209.80
B Unit	404.20	404.20	-225.40
B Salt	417.10	417.10	-238.30
A-2 Carbonate	465.20	465.20	-286.40
A-2 Anhydrite	494.80	494.80	-316.00
A-1 Carbonate	498.00	498.00	-319.20
Guelph	508.20	508.20	-329.40
Goat Island	569.80	569.80	-391.00
Gasport	583.70	583.70	-404.90
Rochester	593.20	593.20	-414.40
Reynales/Fossil Hill	601.00	601.00	-422.20
Cabot Head	602.30	602.30	-423.50
Manitoulin	631.50	631.50	-452.70
Queenston	652.00	652.00	-473.20
Georgian Bay/Blue Mtn	743.40	743.40	-564.60
Trenton Group	878.50	878.50	-699.70
Cobourg	878.50	878.50	-699.70
Sherman Fall	916.80	916.80	-738.00
Kirkfield	959.30	959.30	-780.50
Coboconk	1003.00	1003.00	-824.20
Gull River	1036.30	1036.30	-857.50
Shadow Lake	1139.60	1139.60	-960.80
Cambrian	1140.80	1140.80	-962.00
Precambrian	1148.50	1148.50	-969.70
Geology by Operator			

COMMENTS
no top of bedrock pick.

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE
130.00 -		Sulphur

LOGGING RECORD INTERVAL	TYPE	COMPANY
0.00 - 640.00	Gamma Ray	Computalog
244.50 - 1151.70	Compensated Neutron Formation Density	Schlumberger
248.50 - 1154.50	Dual Induction Spherically Focussed Laterolog	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
244.09	54.01	75.90	CEM
178.05	36.00	274.50	CEM
59.94	4.70	1024.40	HAN
114.05	14.00	1111.70	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 2	**LOT:** 7	**CON:** IVE
WELL NAME: Rowe Ram No. 10			**WELL ID:** T006787	**CLASS:** DEV
OPERATOR: Talisman Energy Inc.	**Target:** ORD		**STATUS:** DH - ABD	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1985-05-31	**N/S BOUND:** 109.40 S	**TRAY:** 9063-64
GRND ELEV: 175.50	**SPUD DATE:**	**E/W BOUND:** 192.00 E	**POOL**
KB ELEV: 177.00	**TD DATE:** 1985-05-29	**NAD 83**	
TVD: 1159.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.38225000 **SURF LONG:** -82.33936111	
	WORKOVER DATE:	**BOT LAT:** 42.38225000 **BOT LONG:** -82.33936111	
	PLUG DATE: 1990-06-05		

FORMATION	TOP	TVD	ELEV
Drift	1.50	1.50	175.50
Top of Bedrock	22.20	22.20	154.80
Kettle Point	22.20	22.20	154.80
Hamilton Group	26.00	26.00	151.00
Dundee	84.60	84.60	92.40
Lucas	126.50	126.50	50.50
Amherstburg	177.20	177.20	-0.20
Bois Blanc	226.00	226.00	-49.00
Bass Islands/Bertie	259.80	259.80	-82.80
G Unit	302.20	302.20	-125.20
F Unit	309.00	309.00	-132.00
E Unit	341.40	341.40	-164.40
D Unit	379.40	379.40	-202.40
C Unit	384.20	384.20	-207.20
B Unit	398.50	398.50	-221.50
B Salt	410.70	410.70	-233.70
A-2 Carbonate	456.00	456.00	-279.00
A-2 Anhydrite	485.20	485.20	-308.20
A-1 Carbonate	487.70	487.70	-310.70
Guelph	498.10	498.10	-321.10
Goat Island	526.00	526.00	-349.00
Gasport	574.70	574.70	-397.70
Rochester	584.50	584.50	-407.50
Reynales/Fossil Hill	592.20	592.20	-415.20
Cabot Head	593.80	593.80	-416.80
Manitoulin	633.50	633.50	-456.50
Queenston	640.00	640.00	-463.00
Georgian Bay/Blue Mtn	737.40	737.40	-560.40
Trenton Group	867.00	867.00	-690.00
Cobourg	867.00	867.00	-690.00
Sherman Fall	906.30	906.30	-729.30
Kirkfield	948.20	948.20	-771.20
Black River Group	992.00	992.00	-815.00
Coboconk	992.00	992.00	-815.00
Gull River	1026.70	1026.70	-849.70
Shadow Lake	1138.00	1138.00	-961.00
Cambrian	1140.00	1140.00	-963.00
Precambrian	1147.00	1147.00	-970.00
Geology by Operator			

COMMENTS
Top of bedrock based on logs (SK 12.5.06).

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
15.00 - 1155.00	Compensated Neutron Formation Density	Schlumberger
575.00 - 1155.50	Dipmeter	Schlumberger
801.00 - 1154.00	Directional Survey	Schlumberger
840.00 - 1155.00	Dual Laterolog Micro SFL	Schlumberger
840.00 - 1143.60	Natural Gamma Ray	Schlumberger
848.20 - 1155.20	Cyberlook	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
340.11	71.40	12.00	CEM
244.09	54.01	102.00	CEM
178.05	36.00	336.00	CEM

CTY: Kent	**TWP:** Dover	**TRACT:** 3	**LOT:** 5	**CON:** IVE
WELL NAME: Liberty #3			**WELL ID:** T011566	**CLASS:** DEV
OPERATOR: Liberty Oil & Gas Ltd.	**Target:** ORD		**STATUS:** GS - ABD	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Cable	**LICENCE ISSUED:** 2006-10-27	**N/S BOUND:** 455.00 S	**TRAY:** 11594
GRND ELEV: 175.70	**SPUD DATE:**	**E/W BOUND:** 182.20 E	**POOL**
KB ELEV: 177.90	**TD DATE:** 2007-03-02	**NAD 83**	
TVD: 1069.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37208722 **SURF LONG:** -82.34801972	
	WORKOVER DATE:	**BOT LAT:** 42.37208722 **BOT LONG:** -82.34801972	
	PLUG DATE: 2007-03-09		

FORMATION	TOP	TVD	ELEV
Drift	2.20	2.20	175.70
Top of Bedrock	20.00	20.00	157.90
Hamilton Group	20.00	20.00	157.90
Dundee	84.30	84.30	93.60
Bass Islands/Bertie	268.50	268.50	-90.60
G Unit	306.00	306.00	-128.10
F Unit	313.00	313.00	-135.10
C Unit	389.50	389.50	-211.60
B Unit	404.00	404.00	-226.10
B Salt	417.50	417.50	-239.60
A-2 Carbonate	454.00	454.00	-276.10
A-2 Shale	479.00	479.00	-301.10
A-2 Anhydrite	485.80	485.80	-307.90
A-1 Carbonate	488.50	488.50	-310.60
Guelph	504.20	504.20	-326.30
Goat Island	525.00	525.00	-347.10
Gasport	571.50	571.50	-393.60
Rochester	583.00	583.00	-405.10
Reynales/Fossil Hill	591.00	591.00	-413.10
Cabot Head	592.80	592.80	-414.90
Manitoulin	632.00	632.00	-454.10
Queenston	641.80	641.80	-463.90
Georgian Bay/Blue Mtn	734.00	734.00	-556.10
Cobourg	862.10	862.10	-684.20
Sherman Fall	901.00	901.00	-723.10
Kirkfield	945.00	945.00	-767.10
Coboconk	987.00	987.00	-809.10
Gull River	1020.30	1020.30	-842.40
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
976.00 -	SHOW	172.00

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE
21.00 - 22.00		Fresh
130.00 -		Sulphur

LOGGING RECORD INTERVAL	TYPE	COMPANY
0.00 - 1072.60	Gamma Ray Neutron	Weatherford

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
114.30	14.14		CEM
339.60	81.10	22.30	SHO
273.05	60.30	88.05	SHO
219.20	35.70	320.00	CEM
177.80	29.76	592.00	CEM

CTY: Kent **TWP:** Dover **TRACT:** 8 **LOT:** 2 **CON:** VE
WELL NAME: Port Dover Gas and Oil - Baska No. 1 - R. Pinsonneault No. 1 **WELL ID:** T000527 **CLASS:** NPW
OPERATOR: Port Dover Gas and Oil Limited **Target:** ORD **STATUS:** GS - ABD

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Cable	**LICENCE ISSUED:** 1960-05-13	**N/S BOUND:** 100.60 N	**TRAY:** 2891-93
GRND ELEV: 175.30	**SPUD DATE:**	**E/W BOUND:** 100.60 W	**POOL**
KB ELEV: 175.87	**TD DATE:** 1960-09-10	**NAD 83**	
TVD: 991.82 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.36694444 **SURF LONG:** -82.36625000	
	WORKOVER DATE:	**BOT LAT:** 42.36694444 **BOT LONG:** -82.36625000	
	PLUG DATE: 1960-09-17		

FORMATION	TOP	TVD	ELEV
Drift	0.61	0.61	175.26
Top of Bedrock	20.40	20.40	155.47
Hamilton Group	20.40	20.40	155.47
Dundee	90.53	90.53	85.34
Columbus	131.10	131.10	44.77
Lucas	143.30	143.30	32.57
Bois Blanc	197.50	197.50	-21.63
Bass Islands/Bertie	253.00	253.00	-77.13
G Unit	324.00	324.00	-148.13
F Unit	330.70	330.70	-154.83
E Unit	367.90	367.90	-192.03
C Unit	401.70	401.70	-225.83
A-2 Carbonate	446.50	446.50	-270.63
A-1 Carbonate	487.70	487.70	-311.83
Guelph	493.80	493.80	-317.93
Rochester	570.60	570.60	-394.73
Reynales/Fossil Hill	577.90	577.90	-402.03
Dyer Bay	578.20	578.20	-402.33
Cabot Head	580.30	580.30	-404.43
Manitoulin	612.00	612.00	-436.13
Queenston	626.40	626.40	-450.53
Georgian Bay/Blue Mtn	718.40	718.40	-542.53
Collingwood	783.30	783.30	-607.43
Trenton Group	846.43	846.43	-670.56
Cobourg	846.43	846.43	-670.56
Kirkfield	884.20	884.20	-708.33
Black River Group	972.92	972.92	-797.05
Coboconk	972.92	972.92	-797.05
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
520.30 - 522.40	0.170	
942.10 - 944.90	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE
18.30 -		Fresh
131.10 -	115.80	Sulphur
550.80 - 551.70		Salt
565.40 - 566.60		Salt

LOGGING RECORD INTERVAL	TYPE	COMPANY

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
340.11	71.40	20.40	
273.05	48.69	94.50	
218.95	35.70	326.10	BHP

CTY: Kent	**TWP:** Dover	**TRACT:** 2-6	**LOT:** 6	**CON:** IVE
WELL NAME: PPC/Ram Disposal 1			**WELL ID:** T007377	**CLASS:** BD
OPERATOR: Columbia Natural Resources Canada Limited	**Target:** DEV		**STATUS:** BD - ABD	

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1988-08-19	**N/S BOUND:** 566.40 N	**TRAY:** 5289
GRND ELEV: 176.00	**SPUD DATE:**	**E/W BOUND:** 108.00 E	**POOL**
KB ELEV: 178.50	**TD DATE:** 1988-09-29	**NAD 83**	Dover 7-5-V E Pool
TVD: 190.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37320833 **SURF LONG:** -82.34026556	
	WORKOVER DATE:	**BOT LAT:** 42.37320833 **BOT LONG:** -82.34026556	
	PLUG DATE: 2002-06-20		

FORMATION	TOP	TVD	ELEV
Drift	2.50	2.50	176.00
Top of Bedrock	22.30	22.30	156.20
Hamilton Group	22.30	22.30	156.20
Dundee	88.80	88.80	89.70
Columbus	127.00	127.00	51.50
Lucas	133.00	133.00	45.50
Amherstburg	178.00	178.00	0.50
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
0.00 - 188.00	Density (Formation)	Computalog
0.00 - 188.00	Gamma Ray Neutron	Computalog

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
178.05	34.00	39.70	CEM
59.94	6.99	107.00	HAN
114.05	14.81	119.80	CEM

CTY: Kent **TWP:** Dover **TRACT:** 5 **LOT:** 5 **CON:** VE
WELL NAME: R.E.C. et al 1 **WELL ID:** T007794 **CLASS:** DEV
OPERATOR: Rowe Energy Corporation **Target:** ORD **STATUS:** GS - ABD

DRILLING DATA	DATES	COORDINATES	SAMPLES
RIG TYPE: Rotary	**LICENCE ISSUED:** 1991-05-29	**N/S BOUND:** 469.30 N	**TRAY:** 10173-74
GRND ELEV: 174.70	**SPUD DATE:**	**E/W BOUND:** 198.30 W	**POOL**
KB ELEV: 178.20	**TD DATE:** 1991-06-30	**NAD 83**	
TVD: 1151.00 **PBTD:**	**COMPLETE DATE:**	**SURF LAT:** 42.37991667 **SURF LONG:** -82.35336111	
	WORKOVER DATE:	**BOT LAT:** 42.37991667 **BOT LONG:** -82.35336111	
	PLUG DATE: 1993-12-04		

FORMATION	TOP	TVD	ELEV
Drift	3.50	3.50	174.70
Top of Bedrock	34.10	34.10	144.10
Hamilton Group	34.10	34.10	144.10
Dundee	83.30	83.30	94.90
Lucas	119.40	119.40	58.80
Amherstburg	188.20	188.20	-10.00
Bois Blanc	227.00	227.00	-48.80
Bass Islands/Bertie	260.20	260.20	-82.00
G Unit	301.50	301.50	-123.30
F Unit	308.40	308.40	-130.20
E Unit	336.70	336.70	-158.50
C Unit	384.40	384.40	-206.20
B Unit	398.10	398.10	-219.90
B Salt	410.50	410.50	-232.30
A-2 Carbonate	454.40	454.40	-276.20
A-2 Anhydrite	484.00	484.00	-305.80
A-1 Carbonate	487.00	487.00	-308.80
Guelph	499.60	499.60	-321.40
Goat Island	554.80	554.80	-376.60
Gasport	572.20	572.20	-394.00
Rochester	583.90	583.90	-405.70
Reynales/Fossil Hill	591.80	591.80	-413.60
Cabot Head	593.90	593.90	-415.70
Manitoulin	632.80	632.80	-454.60
Queenston	634.90	634.90	-456.70
Georgian Bay/Blue Mtn	737.50	737.50	-559.30
Collingwood	843.50	843.50	-665.30
Trenton Group	866.00	866.00	-687.80
Cobourg	866.00	866.00	-687.80
Sherman Fall	906.80	906.80	-728.60
Kirkfield	946.60	946.60	-768.40
Coboconk	990.90	990.90	-812.70
Gull River	1024.50	1024.50	-846.30
Shadow Lake	1137.50	1137.50	-959.30
Cambrian	1138.20	1138.20	-960.00
Precambrian	1144.00	1144.00	-965.80
Geology by Operator			

COMMENTS

INITIAL GAS INTERVAL	FLOW 1000 m3/dM	SIP kPag
913.00 -	SHOW	

INITIAL OIL INTERVAL	FLOW m3/d	SIP kPag

WATER RECORD INTERVAL	STATIC LEVEL	TYPE

LOGGING RECORD INTERVAL	TYPE	COMPANY
605.00 - 1150.00	Compensated Neutron	Schlumberger
605.00 - 1150.00	Lithodensity Tool	Schlumberger
605.00 - 1150.00	Dual Laterolog Micro SFL	Schlumberger

Casing O.D. (mm)	Weight (kg/m)	Setting Depth (m)	How Set
297.94	62.61	90.00	CEM
218.95	35.81	605.38	CEM

Ministry of Natural Resources / Ministère des Richesses naturelles — Ontario

Oil, Gas and Salt Resources Act,

Plugging of a Well Report

To the Minister of Natural Resources

Form 10

v. 1999-01-07

Well being: Plugged [X] Plugged Back [ ] Plug Back TD 190

WELL NAME PPC/Ram Disposal 1 LICENCE NO. 7377

Name of Operator Columbia Natural Resources Tel. # (506)443 9751

Address 65 Regent Street Fredericton New Brunswick Fax #

Location County Kent Township Dover

Tract 26 Lot 6 Concession IVE Lake Erie: Block Tract

Coordinates from Lot Boundaries 531.5 m. N [X] S [ ] 65.6 m. E [X] W [ ] Latitude

Landowner Edna Peltier Tel. # Longitude

Plugging Contractor Canadian Oilbelt Tel. # (519) 864 7750

Plugging Start Date June 19 2002 Plugging End Date June 20 2002 Thickness of Drift N/A

GAS INTERVALS AND PRESENT FLOW AND PRESSURE

INTERVAL	FLOW 1000 m^3/d	S.I. PRESSURE kPa
	NIL	

WATER RECORD

INTERVAL	LEV.FR.SURF.	TYPE
	NIL	

OIL INTERVALS AND PRESENT FLOW

INTERVAL	FLOW m^3/d	API GRAVITY
	NIL	

CASING AND TUBING RECORD

SIZE mm	SET AT m.	HOW SET	m. RECOVERED	m. LEFT IN
178	39.7	Cement	0	39.7
114	119.8	Cement	0	119.8
60	102	hanging	102	0

PLUG LOCATIONS

PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE
1	102	103	see	notes
2	50	102		
3	0	50		

PLUG LOCATIONS

PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE

Additional Detail

Plug #1 is a wireline set drillable bridge plug set with C.R. at 102.5. Was pressure tested to 3447 for 10 minutes no leakoff

114 mm casing was tested after bridge plug set to 3447 for 10 minutes no leakoff.

7 tonnes class G 1% calc used to build the two plugs, good cement returns to the rig tank after 2nd plug (approx .7 m3)

Tubing all recovered and removed from location.

Casing cut down to below plough depth and capped with steel plate.

The undersigned certified examiner visited the site during the plugging operation and certifies the accuracy of the data presented herein.

Certified Examiner: Name Mike Rushton Signature

The undersigned certifies that the above-noted well has been plugged in compliance with the Act and Regulations, the information provided herein is complete and accurate, and he/she has authority to bind the operator

Date June 23 2002	Name Mike Rushton	Signature
Company Columbia Natural Resources	Title Consultant	

Ministry of Natural Resources / Ministère des Richesses naturelles — Ontario

Oil, Gas and Salt Resources Act,

Plugging of a Well Report

To the Minister of Natural Resources

v. 1999-01-07

Form 10

Well being: Plugged [X] Plugged Back [ ] Plug Back TD .....

WELL NAME Liberty # 3, Dover 3-5-IVE LICENCE NO. 11566

Name of Operator Liberty Oil & Gas Ltd. Tel. # 519 351- 4156

Address 24397 Jacob Road, Box 119, Pain Court, On, Nop 1Z0 Fax # 519 351-2349

Location County Kent Township Dover

Tract 3 Lot 5 Concession IVE Lake Erie: Block ..... Tract .....

Coordinates from Lot Boundaries 455 m. N [ ] S [X] 182.2 m. E [X] W [ ] Latitude 42.37208722

Landowner G. E. And B. A. Ouellette Tel. # 519 354-4527 Longitude 82.34801972

Plugging Contractor T. W. Marsh Well Drilling and Servicing Tel. # 519 695-6060

Plugging Start Date March 5 /2007 Plugging End Date March 9/2007 Thickness of Drift 22.30 m

GAS INTERVALS AND PRESENT FLOW AND PRESSURE

INTERVAL	FLOW 1000 m^3/d	S.I. PRESSURE kPa
976 m	Show	172 kPa

WATER RECORD

INTERVAL	LEV.FR.SURF.	TYPE
21-22 m		Fresh
130 m		Sulphur

OIL INTERVALS AND PRESENT FLOW

INTERVAL	FLOW m^3/d	API GRAVITY

CASING AND TUBING RECORD

SIZE mm	SET AT m.	HOW SET	m. RECOVERED	m. LEFT IN
339.7	22.3	Shoe	0	22.3
273.1	88.05	Shoe	0	88.05
219.1	320	Cement	0	320
177.8	592.8	Cement	0	592.8

PLUG LOCATIONS

PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE
1	873	860 m	9 Sacs	G
2	590 m	613 m	16 Sacs	G
3	496 m	513 m	10 Sacs	G
4	312 m	323 m	9 Sacs	G
5	83 m	95 m	8 Sacs	G
6	16 m	26 m	7 Sacs	G
7	1 m	6 m	3 sacs	G

PLUG LOCATIONS

PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE

Additional Detail

All plugs except top plug were dump bailed. Top plug was dumped from surface.
Space between all plugs filled with water.
Well casings cut off 1 m below grade.
Lead plug drilled in on plug 3.

The undersigned certified examiner visited the site during the plugging operation and certifies the accuracy of the data presented herein.

Certified Examiner: Name Robert Newport Signature R Newport

The undersigned certifies that the above-noted well has been plugged in compliance with the Act and Regulations, the information provided herein is complete and accurate, and he/she has authority to bind the operator

Date	Name Morley Salmon	Signature
Company	Liberty Oil and Gas Ltd.	Title Director

Ministry of Natural Resources / Ministère des Richesses naturelles — Ontario

Oil, Gas and Salt Resources Act,

Plugging of a Well Report

To the Minister of Natural Resources

Form 10 — v. 1999-01-07

Well being: Plugged [x] Plugged Back [ ] Plug Back TD .....

WELL NAME Rowe Ram #5 LICENCE NO. 6533

Name of Operator Columbia Natural Resources Tel. #

Address 65 Regent #220 Fredericton New Brunswick Fax #

Location County Kent Township Dover

Tract 8 Lot 6 Concession IVE Lake Erie: Block Tract

Coordinates from Lot Boundaries 151.45 m. N [x] S [ ] 155.9 m. E [ ] W [x] Latitude

Landowner F. Trudell Tel. # Longitude

Plugging Contractor Oilbelt Tel. #

Plugging Start Date june 10 02 Plugging End Date june 13 02 Thickness of Drift

GAS INTERVALS AND PRESENT FLOW AND PRESSURE		
INTERVAL	FLOW 1000 m^3/d	S.I. PRESSURE kPa

WATER RECORD		
INTERVAL	LEV.FR.SURF.	TYPE

OIL INTERVALS AND PRESENT FLOW		
INTERVAL	FLOW m^3/d	API GRAVITY

CASING AND TUBING RECORD				
SIZE mm	SET AT m.	HOW SET	m. RECOVERED	m. LEFT IN
244	75.9	cement	0	all
178	274.5	cement	0	all
114	1111.7	cement	0	all
60	1024.4	hnging	1024	none

PLUG LOCATIONS				
PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE
1	1032	1050	.2t	G
2	855	927	.8t	G
3	650	700	.6t	G
4	330	360	.3t	G
5	210	250	.4t	G
6	76	120	.5t	G
7	0	50	.6t	G

PLUG LOCATIONS				
PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE

Additional Detail

shoot holes at 375 m in 114 and set retainer at 370 pump 5.5 tonnes cement up annulus of 114mm good returns to surface
pressure test annulus of 114 and 178mm both tests at 700kpa hold for 10 minutes no leakoff
cut off wellhead and cut casing strings down 3 metres below surface
cap casing stubs with steel plate.

The undersigned certified examiner visited the site during the plugging operation and certifies the accuracy of the data presented herein.

Certified Examiner: Name Mike Rushton Signature

The undersigned certifies that the above-noted well has been plugged in compliance with the Act and Regulations, the information provided herein is complete and accurate, and he/she has authority to bind the operator

Date Aug 15 02	Name Mike Rushton	Signature
Company Columbia Natural Res	Title	Consultant

Ministry of Natural Resources
Ontario

Plugging of a Well Record

The Petroleum Resources Act, 1971

Aug 9/83

Form 110

To the Minister

WELL NAME Rowe/Ram No. 3

Name of Owner of Well E. P. Rowe Oil Limited

Address P. O. Box 8086, Sub Stn 41, London, Ontario. N6G 2B0

Lease Number ..... Year Drilled 1983

Name of Landowner when drilled Rosaire Pinsonneault Land Well No. .....

County Kent Township Dover

Lot 4 Concession V E Total Depth 1180 m

Co-ordinates: N-S. North 442.57 m

E-W. West 195.00 m

Plugging Contractor Underwater Gas Developers Licence No. .....

Plugging Supervisor J. M. Rowe

Plugging Dates 83/05/18

Well Data: Thickness of Drift 70 m

Depths of All Water Pays: Fresh n/a

Mineral 152 m

Depths of All Gas Pays nil

Present Flow and Pressure nil $10^3 m^3/d$ k Pa

Depths of All Oil Pays ~~nil~~ See 107

Present Production nil m^3/d

CASING RECORD

Size	Seated At	How Set	m Recov.	m Left In
244 mm	84 m	cemented	none	all
178 mm	602 m	cemented	none	all

Describe Plugging Method in Complete Detail

Circulate w/gel to condition hole
Plug #1 - 1079 spot 30 sx
Plug #2 - 841 35 sx
Plug #3 - 585 35 sx
Plug #4 - 36 45 sx

Signature E. Peter Rowe

Date Form Completed

Address P. O. Box 8086, Sub Stn 41, London

1079 (12/76)

Ministry of Natural Resources
Ontario

Form 110

Plugging of a Well Record

The Petroleum Resources Act, 1971

To the Minister

Jan 19/87

WELL NAME ROWE/RAM #2 Paper 8-5-VE Permit 6103

Name of Owner of Well E.P. ROWE OIL LIMITED

Address 150 KENT STREET., LONDON, ONTARIO N6A 1L3

Lease Number - Year Drilled 1983

Name of Landowner when drilled J.P. PINNSONEAULT Land Well No. -

County KENT Township DOVER

Lot ~~#~~ 5 Concession V E Total Depth 1168 M

Co-ordinates: N~~S~~. 45.72 meters N

~~#~~W. 109.73 meters W

Plugging Contractor C.W. ROSE Licence No.

Plugging Supervisor MR. RICK ASHBURN

Plugging Dates ~~Dec~~ 14 - ~~Dec~~ 21, 1986

Well Data: Thickness of Drift 25.4 M

Depths of All Water Pays: Fresh N/R

Mineral ~~N/R~~ 122-125 Salt 517-519 Salt

Depths of All Gas Pays 93M, 905-914 M

Present Flow and Pressure NIL Mcf. NIL Psig.

Depths of All Oil Pays NIL

Present Production NIL B.O.P.D.

CASING RECORD

Size	Seated At	How Set	Ft. Recov.	Ft. Left In
340mm	21.1 M	Shoe	NIL	ALL
244mm	88.9 M	Cemented	NIL	ALL
178mm	215.5 M	Cemented	NIL	ALL

Describe Plugging Method in Complete Detail

Plug #1- 877.8M - 850.4M Used 50 Sx Cement.
Plug #2-650.7M- 620.3M Used 25 Sx Cement.
Plug #3- 590M - 560.8M Used 25 Sx Cement.
Plug #4- 515.0M - 485.0M Used 25 Sx Cement.
Plug #5- 310.0M - 283.5M Used 15 Sx Cement.
Plug #6- 230.0M - 200.0M Used 25 Sx Cement.
Plug #7- 95.0M - 76.2M Used 15 Sx Cement.
Filled hole with tamped clay from 76.2M to surface. Cut off casing below plough depth and welded on plate.

NOTE: Hole caved in from T.D. to a depth of 877.8M.

Signature

January 8th, 1987
Date Form Completed

Address 150 Kent Street., LONDON, Ontario N6A-1L3

1079

Dec 10/90

Ministry of Natural Resources
Ontario

Plugging of a Well Record

The Petroleum Resources Act, 1971

Form 110

To the Minister

WELL NAME Rowe/Ram #10 Dover 2-7-IVE 6787

Name of Owner of Well PPC Oil & Gas Corp.

Address 555 Southdale Rd. E. London, Ontario N6E 1A2

Lease Number ----- Year Drilled 1985

Name of Landowner when drilled G. Kestelyn Land Well No. 10

County Kent Township Dover East

Lot 7 Concession IV Total Depth 1159 m

Co-ordinates: N-S. 109.4M

E-W. 192.0M

Plugging Contractor C.W. Rose Gas & Oil Well Serv. Licence No. --

Plugging Supervisor Mike Rushton

Plugging Dates May 24- June 5, 1990

Well Data: Thickness of Drift 82.9 m

Depths of All Water Pays: Fresh NR

Mineral NR

Depths of All Gas Pays NIL

Present Flow and Pressure NIL $10^3m^3/d$ NIL k Pa

Depths of All Oil Pays NIL

Present Production NIL m^3/d

CASING RECORD

Size	Seated At	How Set	m Recov.	m Left In
240 mm	102 m	Cemented	0	102 m
178 mm	336 m	Cemented	240	96 m

Describe Plugging Method in Complete Detail

1. Trip Tubing to 1140m spot 30sx at 1140m, 35 sx at 890m 40sx at 660m
2. Tag plug at 617m, spot 40sx at 460m 30sx at 300m, pull tubing
3. Tag Cement at 313 m
4. Cut casing at 240m, Trip Casing out of hole
5. Set Bridge (Post + 10ft stone) and 20 sx at 236m.
6. Set bridge (Post + 15ft stone + lead plug) at 120m, Fill with water to test. Test good Run 20 sx on top with bailer. Run 20 sx at surface with bailer.
7. Cut wellhead down below tile depth install steel cap by welding.

Signature

Nov. 21, 1990
Date Form Completed

Address 555 Southdale Road East, London, Ont. N6E 1A2

Ministry of Natural Resources
Ontario

The Petroleum Resources Act (R.S.O.)

Form 110 - Record of Plugging a Well

To the Minister

Permit No: 7794

Well Name: R.E.C. et. al #1

Name of Owner of Well: Rowe Energy Corporation Telephone No.: 519-264-9308 Fax No.: 519-2649817

Address: RR #3 Mt. Brydges, Ontario, NOL1WO

Lease Number: Year Drilled: 1991

Name of Landowner when Drilled: J.P.Pinsonneault Land Well No.: 001

Location: County: Kent Township: Dover Lot: 5 Concession: V-E

Block: Tract: 5 Total Depth: 1151M

Co-ordinates: N 469.25 W: 198.32

Plugging: Contractor: Bradco Drilling

Plugging Supervisor: J.M. Rowe Rig Licence: 1191M9301

Plugging Dates: 1993-12-04

Well Data: Thickness of Drift: 30.6M m. Depth of All Water Pays: Fresh NA Mineral: NA

Depth of all Gas Pays: 913M Present Flow & Pressures: D&A $10^3m^3/d$ D&A k Pa

Depth of Oil Pays: NIL Present Production: D&A m^3/d

Casing Record:

Size	Seated At	How Set	m Recov.	m Left in
298mm	90M	Cemented	-0-	90M
219mm	605.38M	Cemented	-0-	605.38

Describe Plugging Method in Complete Detail:

Plug#1: 900M - 821.19M KB; Cemented two tonnes class"G", 2% CaCl2, through 73mm Tbg.
Plug #2: 648M - 624.45M KB; Cemented .6 tonnes class "G", through 73 mm Tbg.
Plug #3: 615M - 574M KB; Cemented 1tonne class"G", through 73mm Tbg.
Plug#4: 95M - 48M KB; Cemented 1.2 tonnes class"G", through 73mm Tbg.
Cut csg 1.5M below grade, back fill hole, ~~5sacs cement~~, weld steel plate to 298mm csg

Signature: [signature] Address: RR#3 Mt. Brydges, Ontario NOL 1WO

Date Form Completed: 09/08/94

15598

10, 26.

14.12.67

ONTARIO

DEPARTMENT OF ENERGY RESOURCES

Form 109

Record of the Plugging of a Dry or Abandoned Well

To the Minister of Energy Resources

Name of owner of well Port Dover Docks #1

Address Suite 100 80 Richmond St W Toronto

Well owner's well name and number Port Dover Gas and Oil Ltd.

Name of land owner at time of drilling Roscoe + Thelma Pinsonneault.

Year drilled 1960 Well number on land # 1 Lease number

District or County KENT. Township DOVER EAST.

Lot 2 Concession 5

Co-ordinates: N-S 330' N E-W 330' W

Name of person plugging R. L. McPHERSON.

Address 88 Thompson Blvd. London Ont

Date plugging started Sept 12 19 60 Date completed Sept 17 19 60

Work supervised by R.L. McPherson.

PLUGGING RECORD

Describe method used in complete detail, giving depths, materials, thicknesses.

(1) Bridge 2805'-2790' + 1-8" lead plug + 6 sacks cement

(2) Bridge 1882'-1862' + 1-8" lead plug + 6 sacks cement

(3) Bridge 1615'-1600' + 1-8" lead plug + 6 sacks cement

(4) ~~Bridge~~ 10" lead plug (in top of 8" at 1040') set in casing seat at 1070' + 10 sacks cement

(5) 1-13" lead plug in 10" casing seat at 310' + 15 sacks cement

(6) Set Bridge at 80' + 10' stone + 1 lead plug + 15 sacks cement & fill to 15' of surface with clay + 5 sacks cement & fill to surface with clay.

F

DRIVE PIPE, CASING AND TUBING RECORD

Size	Seated At	Number of feet Recovered	Number of feet abandoned
13 3/8	67'	67'	
10 3/4	310	310	
8 5/8	1070	1040	30'

Date January 17/61

Port Dover Gas and Oil Limited

Signature

80 Richmond St W

Address Toronto Ontario

Ministry of Natural Resources / Ministère des Richesses naturelles — Ontario

Oil, Gas and Salt Resources Act,

Plugging of a Well Report

To the Minister of Natural Resources

Form 10 — v. 1999-01-07

Well being: Plugged [x] Plugged Back [ ] Plug Back TD .....

WELL NAME PPC Ram #21 LICENCE NO. 7548

Name of Operator Columbia Natural Resources Tel. # 506-450-6157

Address 65 Regent street #220 Fredericton N. B. Fax #

Location County Kent Township Dover

Tract 4 Lot 3 Concession IV Lake Erie: Block Tract

Coordinates from Lot Boundaries 421.5 m. N [ ] S [x] 187.5 m. E [ ] W [w] Latitude

Landowner Raymond Griffore Tel. # Longitude

Plugging Contractor Key Energy Tel. #

Plugging Start Date 10-Jun-02 Plugging End Date 15-Jun-02 Thickness of Drift

GAS INTERVALS AND PRESENT FLOW AND PRESSURE		
INTERVAL	FLOW 1000 m^3/d	S.I. PRESSURE kPa

WATER RECORD		
INTERVAL	LEV.FR.SURF.	TYPE

OIL INTERVALS AND PRESENT FLOW		
INTERVAL	FLOW m^3/d	API GRAVITY

CASING AND TUBING RECORD				
SIZE mm	SET AT m.	HOW SET	m. RECOVERED	m. LEFT IN
298	99	cement	0	all
219	595	cement	0	all

PLUG LOCATIONS				
PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE
1	880	945	2.5	G
2	810	870	2.5	G
3	750	810	2.5	G
4	710	774	2.5	G
5	653	717	5	G
6	570	660	3.4	G
7	500	540	1.7	G

PLUG LOCATIONS				
PLUG #	TOP DEPTH	BASE DEPTH	CEM AMT	CEM TYPE
8	400	443	1.8	G
9	300	349	2.1	G
10	98	120	0.65	G
11	0	120	4.2	G
12	0	120	2.3	G

Additional Detail

Pressure test annulus of 219mm unable to test. Talk to Bob Sealey result is to shoot 219 at 298 shoe and circulate cement back up annulus to surface through 219x298casing valve. Have to shoot twice in order to get circulation plug 11 and 12 represent final circulated plug.

unable to get to bottom of original hole at beginning of abandonment talk to Bob Sealey unable to circ anything up because of small tubing string in 200mm hole. Result set first plug at 945m.

Tag plug 1,2,3,5,6,8,11,12 all tag at predicted depth

cut off wellhead and cut casing strings down 3 metres below surface

cap casing stubs with steel plate.

The undersigned certified examiner visited the site during the plugging operation and certifies the accuracy of the data presented herein.

Certified Examiner: Name Mike Rushton Signature

The undersigned certifies that the above-noted well has been plugged in compliance with the Act and Regulations, the information provided herein is complete and accurate, and he/she has authority to bind the operator.

Date Aug 22 02	Name Mike Rushton	Signature
Company Columbia Natural Res	Title	Consultant

Appendix B

Ministry of Natural Resources
Ontario

ORIGINAL

1986 09 22

E.P. Rowe Oil Limited
P.O. Box 8086
Station 41
London, Ontario
N6G 2B0

Attention: Mr. J.M. Rowe

Dear Mr. Rowe:

SUBJECT: Sale of Gas from Rowe/Ram #9, Dover 6-7-IVE Well

We have received notice of your intention to sell gas from the above-noted well in conjunction with the sale of solution gas from the Dover 7-5-VE Pool. At this time we have no evidence that the gas from the Rowe/Ram #9 well originates from a gas cap overlying an oil bearing zone and therefore we do not have any objections to the sale of this gas. Should evidence of an oil bearing zone become apparent in the future then production of the oil shall take priority.

If you have any questions in this matter please contact the Petroleum Resources Section.

Yours truly,

P.A. Palonen
Mineral Resources Co-ordinator

Petroleum Resources Section
P.O. Box 5463
London, Ontario
N6A 4L6

Telephone: 519 - 661-2766

PAP:bd

c.c. M. Hunter
R. Corea

Appendix C

WellView

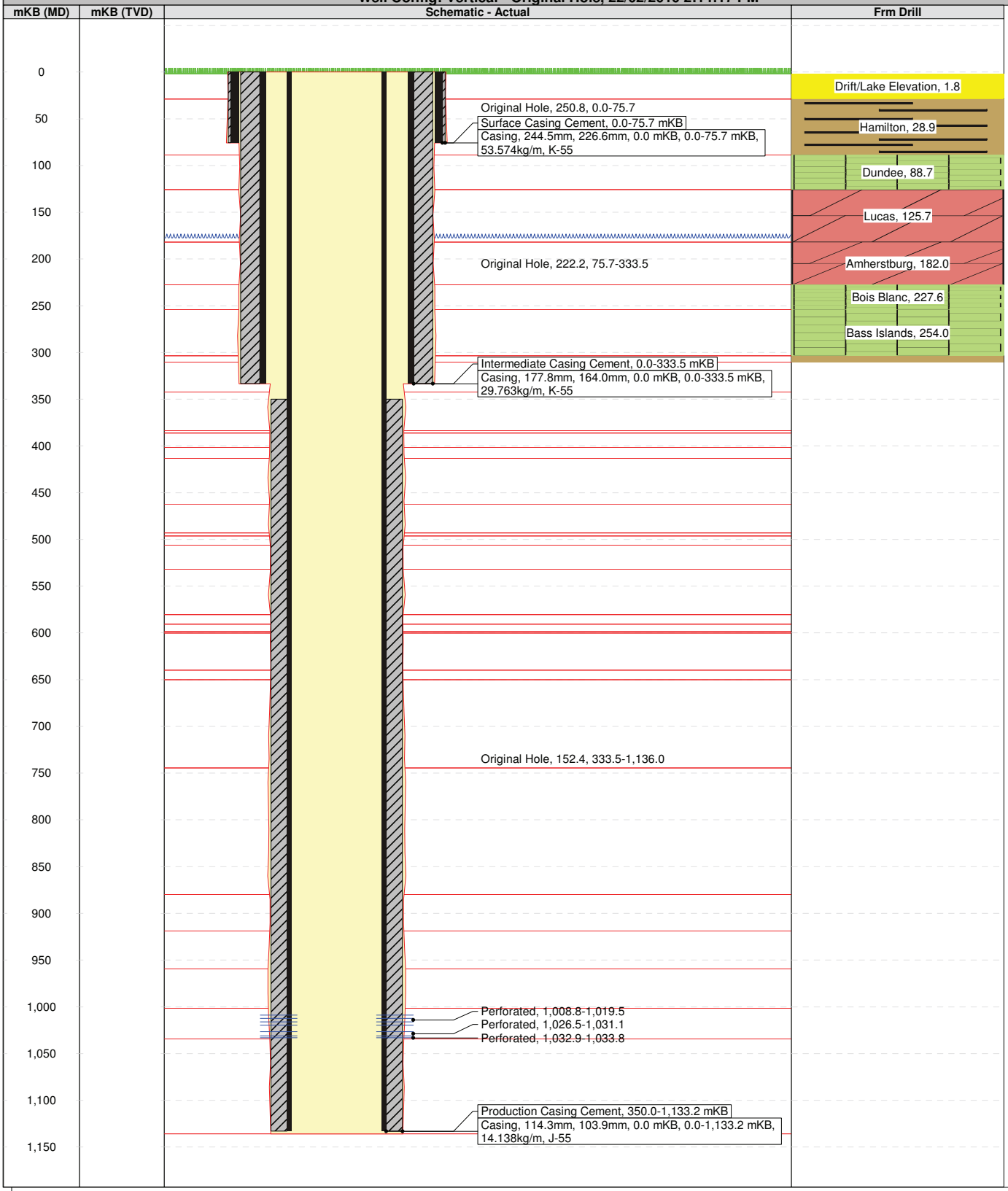
Current Schematic complete

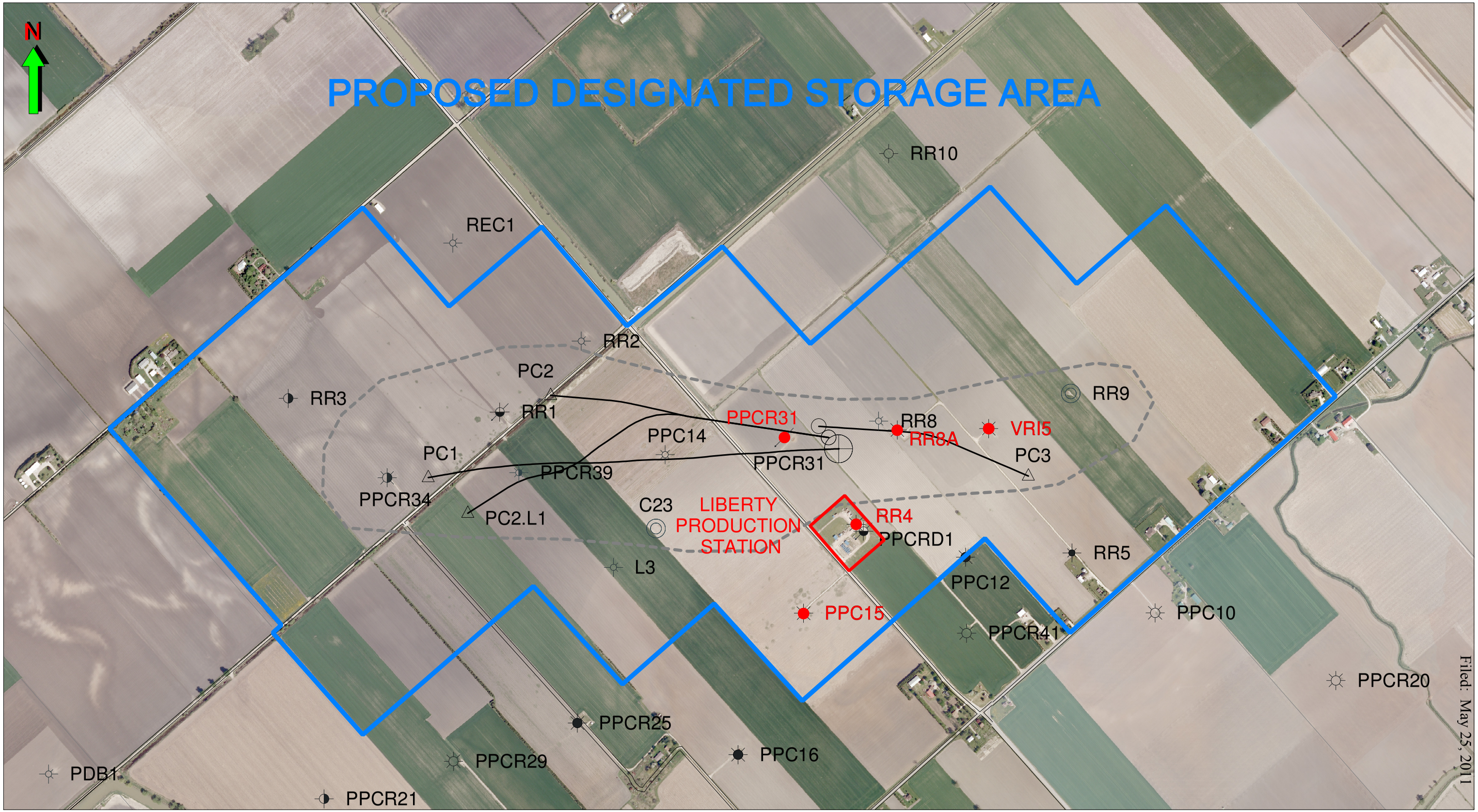
Well Name: Rowe/Ram #8A

UWI	Surface Legal Location	License No.	Pool	State/Province
		T006658A	Dover	Ontario

Well Configuration Type	KB Elevation (m)	KB-Ground Distance (m)	KB-Casing Flange Distance (m)	KB-Tubing Head Distance (m)
Vertical	177.50	1.80		

Well Config: Vertical - Original Hole, 22/02/2010 2:14:17 PM





LIBERTY OIL AND GAS PRODUCTION FACILTITIES ARE HIGHLIGHTED IN RED

EB-2011-0013\0014\0015
Attachment # 2 to MNR IR # 2
Filed: May 25, 2011

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

d) Re: Issue 1:

At Section 3, paragraph 8, Schedule 3 of the Applicant's Prefiled Evidence, what is the significance of the structure top map referenced:

How is that structure top map relevant to interpreting the pool boundary?

Response:

The map was provided to illustrate the relationship between the reservoir outline, the faulting and the Trenton structure. The Trenton structure map was not utilized for interpreting the pool boundary.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

e) Issues 1, 2 and 3

At Section 3, paragraph 9 of the Applicant's Prefiled Evidence, the Applicant states there *"is no evidence that the Jacob Pool is in communication with the Black River Group below or with adjacent reservoirs in the Trenton Group"*.

What would constitute evidence of communication between the storage zone and the Black River formation?

Are observations or monitoring being performed and included that would be effective in collecting such evidence?

If yes, please describe the nature of these observations or monitoring activities.

What type or threshold of data being collected would trigger a concern about the type of communication mentioned in paragraph 9?

Response:

The Black River Formation is at a lower pressure than the proposed storage operating pressures. Any anomalous pressure build up in the Black River would constitute evidence of potential communication between the Trenton and Black River Formations

Union confirms that observations and monitoring are planned as outlined in the Proposed Reservoir Monitoring Program contained in Section 5 - Schedule 1 of the Pre-filed Evidence. In accordance with the agreements with Liberty Oil & Gas Ltd. and Torque Energy Inc., Union will receive production and pressure data for all wells within the Designated Storage Area and the Dover 7-5-VE field. Union will be monitoring Gas Oil Ratios (GOR's) provided by Liberty.

Increases in pressure, changes in GOR's and increases in flow from VRI5 would trigger a concern regarding communication between the Trenton and Black River Formations.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

f) Re: Issues 2 and 3:

At Section 3, paragraph 15 of the Applicant's Prefiled Evidence, the Applicant states that there are several non-storage wells within the proposed Designated Storage Area (DSA).

Are all of the non-storage wells that penetrate the proposed storage zone or are located within the proposed DSA built to the CSA Z341 storage standard?

If any of the non-storage wells are not built to the CSA Z341 storage standard, should they be upgraded to meet the CSA Z341 storage standard?

Response:

All wells are isolated from the storage zone by casing and cement and meet the requirements of the Oil, Gas and Salt Resources Act. Union will run cement bond and casing inspections logs and cement bond logs on all wells that penetrate the storage zone to confirm isolation. Non-storage wells are not required to meet CSA Z341.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

g) Re: Issues 1, 2 and 3

At Section 3, Paragraph 19 of the Applicant's Prefiled Evidence the Applicant states that two of the three caprock samples tested were adversely affected by poor sample quality.

In view of this poor sample quality, should the caprock above the Jacob Pool be further evaluated? If not, why not?

In view of the poor sample quality and relatively low threshold pressure measured for two of the three samples that were collected, is there sufficient evidence to conclude that the caprock for the Jacob Pool provides "excellent sealing properties"?

Response:

Due to the fissile nature of the shale when extracted from in-situ conditions, Union does not believe additional coring would provide a better sample.

The Jacob Pool provides "excellent sealing properties" as evidenced by:

- There is greater than 225m of competent shale caprock above the reservoir providing an impermeable vertical seal.
- The reservoir contained gas for millions of years.
- The permeability measured from the caprock core testing proves that the shale is sufficiently tight to contain the gas at the proposed operating pressures.
- Results obtained by OPG at their Bruce Nuclear site reinforce the competence of the shale as a caprock.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

h) Re: Issue 1:

At Section 3, paragraph 20 of the Applicant's Prefiled Evidence, the Applicant sates that previous tests of the Blue Mountain Shale at the Bruce Nuclear Power generation site "*demonstrate*" that there is an "*excellent caprock seal above the Jacob Pool*".

Given that the Bruce Nuclear Power generation site is located about 200 kilometres away from the Jacob Pool, how can hydraulic testing of Blue Mountain shale from that site be relied upon to demonstrate that the Blue Mountain shale over the Jacob Pool provides an excellent seal?

Response:

The Blue Mountain shale is described as "uniform, soft, laminated, non-calcareous bluish grey to dark grey shale with few fossils" (Hamblin, 1999)[1] deposited during a marine transgression. Since deposition occurs on a regional rather than local scale it is not uncommon to reference locations hundreds of kilometres away. The testing from the Bruce Nuclear Power Generation site was used in conjunction with other data, as outlined in Union's response to MNR interrogatory #5, to establish that the Blue Mountain is a competent caprock providing excellent sealing properties.

[1] Hamblin, A.P. 1999. Upper Ordovician strata of southwestern Ontario: synthesis of literature and concepts; Geological Survey of Canada, Open File 3729, 34p.
Link to NRC website: http://www.geopub.nrcan.gc.ca/index_e.php
Search for Open File Report 3729

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

i) Re: Issues 1, 2 and 3:

For Section 3, paragraph 29 of the Applicant's Prefiled Evidence, please describe, in detail, all of the subsurface activities which were found as a result of the assessment mentioned there. In particular, for each of these subsurface activities, please describe in detail their purpose, mode of operation, minimum and maximum operating pressures, and the integrity of any existing well that penetrates the storage zone, with specific reference to casing, cement and hydraulic isolation of the storage zone from any overlying porous zones.

With specific reference to the assessment mentioned in at Section 3, paragraph 29, please explain in detail how and why you conclude there is *"minimal risk with respect to potential migration of natural gas between any known existing or abandoned wells within 1 km, or any existing subsurface operations within 5 km of the Jacob Pool"?*

Response:

Please refer to the "Assessment of Neighbouring Activities Report – Jacob Pool" included in Union's response to MNR interrogatory #1.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

j) Re: Issues 1, 2 and 3:

At Section 3, Schedule 1 of the Applicant's Prefiled Evidence, the well REC 1 north of the proposed DSA boundary is indicated as a gas show. In which formation was the natural gas encountered?

What evidence is there, if any, that the gas interval encountered in the well REC 1 is not in communication with the natural gas storage reservoir?

Response:

REC 1 encountered a small gas show in the Sherman Fall Formation. It was deemed non-producible and the well was abandoned. A lack of pressure support indicates that the well is not in communication with the proposed natural gas storage reservoir.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

k) Re: Issues 1, 2 and 3:

At Section 3, Schedule 9 of the Applicant's Prefiled Evidence, that the Applicant states under the section entitled "Executive Summary" that "*Porosity values of the cores from the specified depth [865.29m, 867.31m and 870.09m TVD] interval of the well indicated that the formation seems to have a limited storage capacity with restricted transport properties*. Are the above-noted depths for the core samples tested taken from the proposed storage zone?

If yes, please explain why the Jacob Pool is suitable for storage despite these findings of limited storage capacity and restricted transport properties.

If not, how are the porosity values referred in Section 3, Schedule 9 relevant to evaluation of the Jacob Pool?

Response:

No, the above noted depths are in the caprock formation, specifically the Blue Mountain Formation. "Limited storage capacity with restricted transport properties" are desirable properties of the caprock formation.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

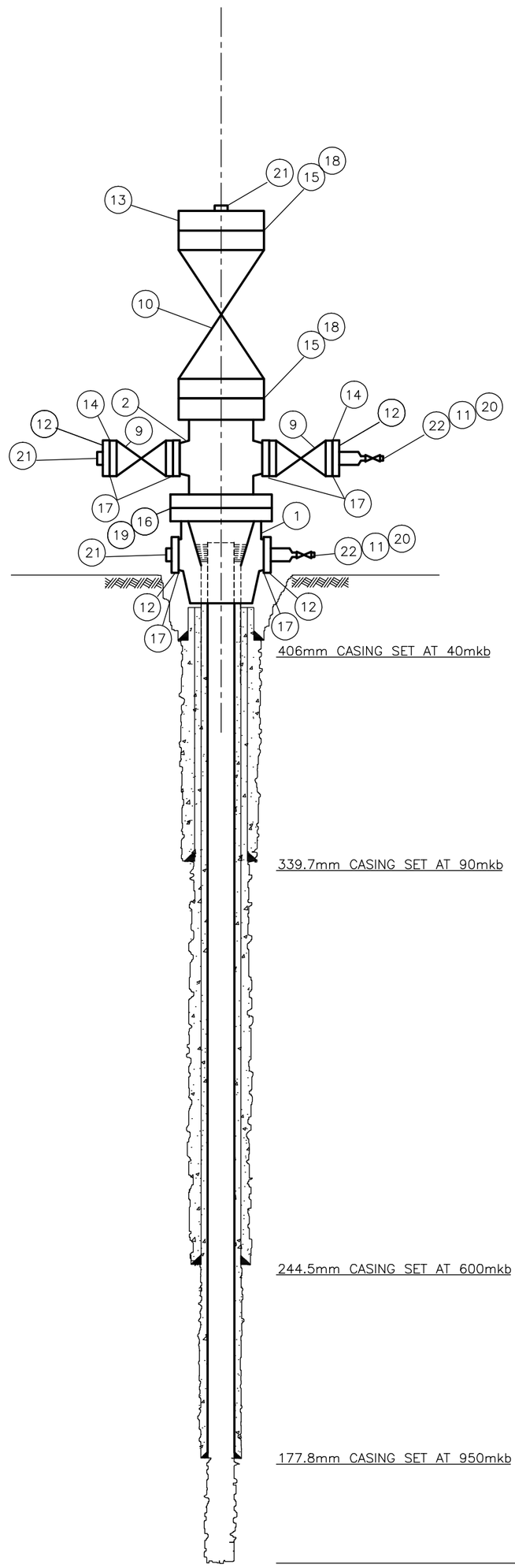
l) Re: Issues 2, 3:

At Section 4, paragraph 1 of the Applicant's Prefiled Evidence, what will be the wellhead configuration of the I/W and observations wells referred to:

Please provide schematics c/w material specifications for each of these wells.

Response:

Wellheads schematics are attached as Attachment # 1 to this interrogatory .



WELL PROFILE
SCALE – 1:20

NOTES:
1) CO ORDINATES FOR WELL PAINCOURT 1
   600.30m SOUTH OF N'LY LOT LINE
   184.85m EAST OF W'LY LOT LINE

   TOP HOLE COORDINATES
   42D 22M 30.00S NORTH
   82D 20M 27.21S WEST
   BOTTOM HOLE COORDINATES
   42D 22M 26.01S NORTH
   82D 21M 26.38S WEST

2) THIS IS A HORIZONTAL WELL

KEY PLAN

BILL OF MATERIALS

ITEM No	QUAN.	SIZE	STOCK No	DESCRIPTION
1	1	9.5/8x11	N.I.S.	CASING BOWL 244.5mm 8rd X 11 3000# W/2"SSO, TYPE NSB
2	1	11 x 7.1/16	N.I.S.	TUBING SPOOL ASSEMBLY TYPE B, 11" 3000# x 7.1/16" 3000# C/W 2 5000# SSO
3	1	11 x 7	139730	MANUAL CASING SLIPS
4	2	11 x 7	139731	PRIMARY SUPPORTS TYPE B 11"x7"
5	1	11 x 7	139732	PRIMARY PACKING TYPE B 11"x7"
6	2	11 x 7	139733	SECONDARY SUPPORTS TYPE B 11"x7"
7	1	11 x 7	139734	SECONDARY PACKING TYPE B 11"x7"
8	1	7.1/16 x 7	N.I.S.	BIT PILOT TYPE B 7.1/16"x7"
9	2	2.1/16	N.I.S.	GATE VALVE, API 6A 5000#, RJ, L AA L PR2 PSL2
10	1	7.1/16	N.I.S.	GATE VALVE, API 6A 3000#, RJ, L AA L PR2 PSL2
11	2	NPS 1/2	107328	BALL VALVE, THD., 3000#/2000# ST/BD
12	4	2.1/16	N.I.S.	BLIND FLANGE, API 5000# RTJ C/W NPS 2 TAPPED HOLE ES–PF16.0
13	1	NPS 6	N.I.S.	BLIND FLANGE, PN150 RTJ C/W NPS 2 TAPPED HOLE ES–PF16.0
14	16	22.2x159mm	N.I.S.	BOLT STUD SET AS PER ES–SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
15	24	28.6x210mm	N.I.S.	BOLT STUD SET AS PER ES–SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
16	16	34.9x248mm	N.I.S.	BOLT STUD SET AS PER ES–SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
17	6	2.1/16	N.I.S.	RING GASKET, RX24 SOFT IRON, MARKED AS PER API 6A
18	2	7.1/16	N.I.S.	RING GASKET, RX45, SOFT IRON, MARKED AS PER API 6A
19	1	11	N.I.S.	RING GASKET, RX53, SOFT IRON, MARKED AS PER API 6A
20	2	NPS 1/2	105095	BULL PLUG
21	3	NPS 2	105117	BULL PLUG
22	2	NPS 2 x 1/2	104595	SWAGE NIPPLE, STL. X–HVY TBE
23	1	406.4	N.I.S.	DRIVE SHOE
24	5	339.7	N.I.S.	BOW CENTRALIZER
25	12	244.5	N.I.S.	BOW CENTRALIZER
26	1	244.5	N.I.S.	CEMENT BASKET
27	1	244.5	N.I.S.	PLUNGER FLOAT COLLAR
28	1	244.5	N.I.S.	GUIDE SHOE
29	25	177.8	N.I.S.	BOW CENTRALIZER
30	10	177.8	N.I.S.	BOLT ON STOP COLLAR
31	1	177.8	N.I.S.	PLUNGER FLOAT COLLAR
32	1	177.8	N.I.S.	GUIDE SHOE
33	4		N.I.S.	THREAD LOCK KITS
34	40m	406.4mm	N.I.S.	CASING, 76.49kg/m, LINE PIPE
35	90m	339.7mm	N.I.S.	CASING, 71.43kg/m, 8RD, H40, API SPEC 5CT, RANGE2, ST&C
36	600m	244.5mm	N.I.S.	CASING, 53.57kg/m, 8RD, K55, API SPEC 5CT, RANGE3, LT&C
37	950m	177.8mm	N.I.S.	CASING, 34.23kg/m, 8RD, K55, API SPEC 5CT, RANGE3, LT&C, SEAMLESS

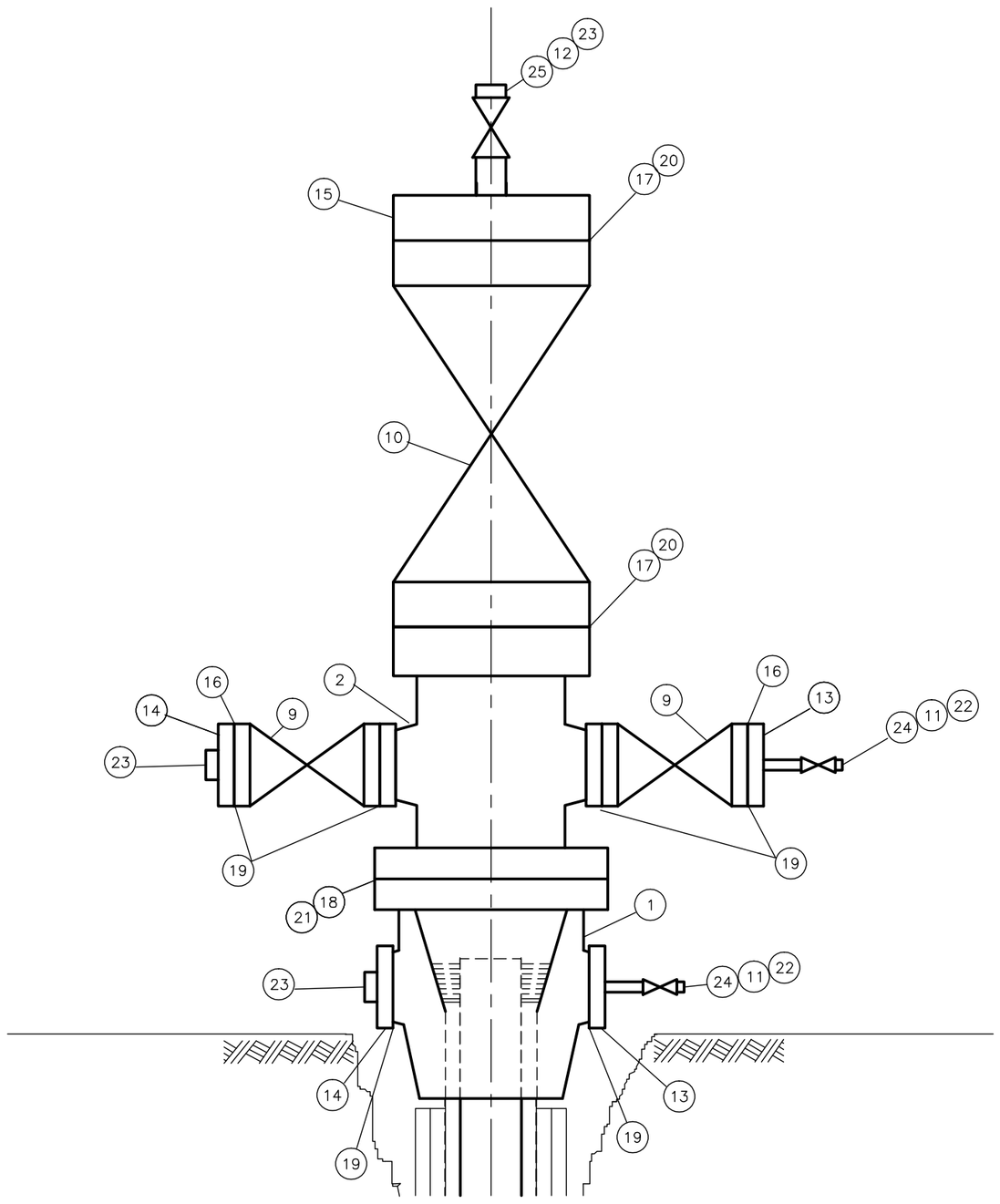
REVISIONS

NO.	DATE	BY	APP'D	REMARKS

uniongas

WELL PAINCOURT 1
JACOB POOL, LOT 6, CON. 4 DOVER TWP.

DRAWN BY: I.A. MILNE	DATE: 2011.05.08	SCALE: 1:20	PLOT SPEC. 1=20
CHECKED BY	DATE	AC/DRAW CODE: D744–01	
APPROVED BY	DATE	JOB NO.	
SIZE: C	DRAWER	SHEET	DRAWING NO.: D744–01



WELL PROFILE
SCALE – 1:10

NOTES:
1) CO ORDINATES FOR WELL PAINCOURT 2

TOP HOLE COORDINATES
42D 22M 30.954S NORTH
82D 20M 28.389S WEST
UTM COORDINATES
N4692314 E389577.5

KEY PLAN

BILL OF MATERIALS

ITEM No	QUAN.	SIZE	STOCK No	DESCRIPTION
1	1	244.5mmx11	N.I.S.	CASING BOWL, 244.5mm 8RD X 11, TYPE NSB C/W 2.1/16 SSO, GR. L7
				STUDS, GR. 4L NUTS, API 6A 3000 L AA PSL2 PR2, EXTENDED HYDROSTATIC
				BODY TEST WILL BE CONDUCTED PER API 6A 7.4.9.5.4 W/ 2ND HOLD PERIOD
				EXTENDED TO 4 HOURS
2	1	11 x 7.1/16	N.I.S.	TUBING SPOOL ASSEMBLY TYPE B, 11" x 7.1/16" c/w 2.1/16, SSO, GR. L7 STUDS,
				GR. 4L NUTS, API 6A 3000 L AA PSL2 PR2, EXTENTED HYDROSTATIC BODY TEST WILL
				BE CONDUCTED PER API 6A 7.4.9.5.4 W/ 2ND HOLD PERIOD EXTENDED TO 4 HOURS
3	1	11 x 7	139722	MANUAL CASING SLIPS 11"x7"
4	2	11 x 7	139723	PRIMARY SUPPORTS TYPE B 11"x7"
5	1	11 x 7	139724	PRIMARY PACKING TYPE B 11"x7"
6	2	11 x 7	139725	SECONDARY SUPPORTS TYPE B 11"x7"
7	1	11 x 7	139726	SECONDARY PACKING TYPE B 11"x7"
8	1	7.1/16 x 7	132323	BIT PILOT TYPE B 7.1/16"x7"
9	2	2.1/16	N.I.S.	VALVE, GATE API 6A 3000 L AA PSL2 PR2
10	1	7.1/16	N.I.S.	VALVE, GATE API 6A 3000 L AA PSL2 PR2
11	2	NPS 1/2	107328	BALL VALVE, THD., 3000#/2000# ST/BD
12	1	NPS 2	107422	BALL VALVE, THD., 3000#/2000# ST/BD
13	2	2.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 1/2" NPT
14	2	2.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 2" NPT
15	1	7.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 2" NPT
16	16	7/8x6.1/4	N.I.S.	BOLT STUD SET AS PER ES-SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
17	24	1.1/8x8.1/2	N.I.S.	BOLT STUD SET AS PER ES-SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
18	16	1.3/8x10	N.I.S.	BOLT STUD SET AS PER ES-SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
19	6	2.1/16	N.I.S.	RING GASKET, RX24, PSL2 SOFT IRON, MARKED AS PER API 6A
20	2	7.1/16	N.I.S.	RING GASKET, RX45, PSL2 SOFT IRON, MARKED AS PER API 6A
21	1	11	N.I.S.	RING GASKET, RX53, PSL2 SOFT IRON, MARKED AS PER API 6A
22	2	NPS 1/2	105095	PLUG THD., FORGED STL. 41370kPa, SQ HD
23	3	NPS 2	105063	PLUG THD., FORGED STL. 41370kPa, SQ HD
24	2	NPS 1/2x102	103606	NIPPLE, ASTM A106, GR.B XXS
25	1	NPS 2x102	104211	NIPPLE, ASTM A106, GR.B XXS
26	40m	406.4mm	N.I.S.	CASING, 76.49kg/m, LINE PIPE
27	90m	339.7mm	N.I.S.	CASING, 71.43kg/m, H40
28	600m	244.5mm	N.I.S.	CASING, 53.57kg/m, K55
29	950m	177.8mm	N.I.S.	CASING, 34.23kg/m, K55

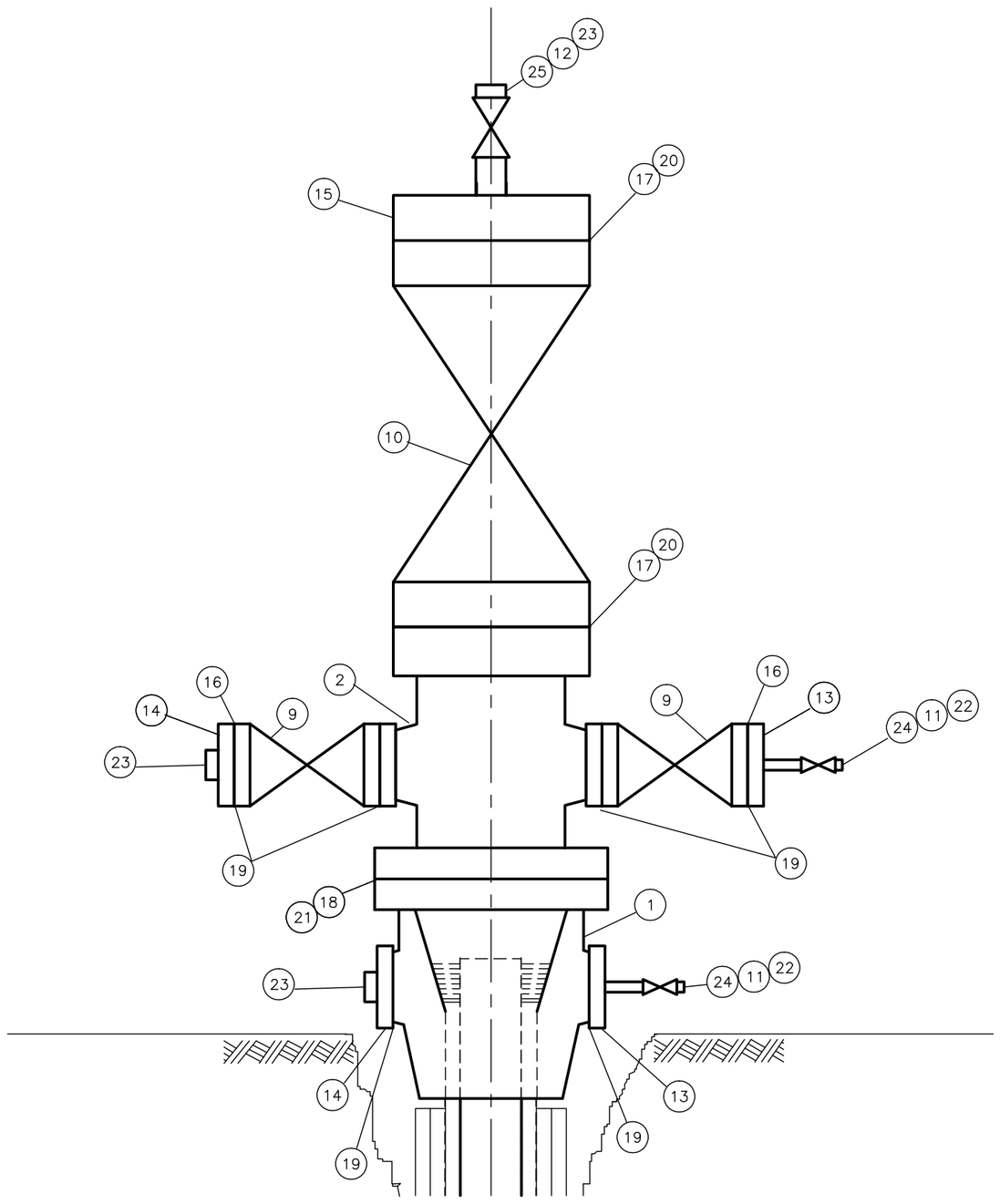
REVISIONS

NO.	DATE	BY	APP'D	REMARKS

uniongas

WELL PAINCOURT 2
JACOB POOL, LOT 6, CON. 4 DOVER TWP.

DRAWN BY I.A. MILNE	DATE 2011.05.24	SCALE 1:10	PLOT SPEC. 1=10
CHECKED BY	DATE	AC/DRAW CODE D744-02	
APPROVED BY	DATE	JOB NO.	
SIZE C	DRAWER	SHEET	DRAWING NO. D744-02



WELL PROFILE
SCALE – 1:10

NOTES:
1) CO ORDINATES FOR WELL PAINCOURT 3

TOP HOLE COORDINATES
42D 22M 31.913S NORTH
82D 20M 29.568S WEST
UTM COORDINATES
N4692344 E389551

KEY PLAN

BILL OF MATERIALS

ITEM No	QUAN.	SIZE	STOCK No	DESCRIPTION
1	1	244.5mmx11	N.I.S.	CASING BOWL, 244.5mm 8RD X 11, TYPE NSB, C/W 2.1/16 SSO, GR. L7
				STUDS, GR. 4L NUTS, API 6A 3000 L AA PSL2 PR2, EXTENDED HYDROSTATIC
				BODY TEST WILL BE CONDUCTED PER API 6A 7.4.9.5.4 W/ 2ND HOLD PERIOD
				EXTENDED TO 4 HOURS
2	1	11 x 7.1/16	N.I.S.	TUBING SPOOL ASSEMBLY TYPE B, 11" x 7.1/16" c/w 2.1/16, SSO, GR. L7 STUDS,
				GR. 4L NUTS, API 6A 3000 L AA PSL2 PR2, EXTENTED HYDROSTATIC BODY TEST WILL
				BE CONDUCTED PER API 6A 7.4.9.5.4 W/ 2ND HOLD PERIOD EXTENDED TO 4 HOURS
3	1	11 x 7	139722	MANUAL CASING SLIPS 11"x7"
4	2	11 x 7	139723	PRIMARY SUPPORTS TYPE B 11"x7"
5	1	11 x 7	139724	PRIMARY PACKING TYPE B 11"x7"
6	2	11 x 7	139725	SECONDARY SUPPORTS TYPE B 11"x7"
7	1	11 x 7	139726	SECONDARY PACKING TYPE B 11"x7"
8	1	7.1/16 x 7	132323	BIT PILOT TYPE B 7.1/16"x7"
9	2	2.1/16	N.I.S.	VALVE, GATE API 6A 3000 L AA PSL2 PR2
10	1	7.1/16	N.I.S.	VALVE, GATE API 6A 3000 L AA PSL2 PR2
11	2	NPS 1/2	107328	BALL VALVE, THD., 3000#/2000# ST/BD
12	1	NPS 2	107422	BALL VALVE, THD., 3000#/2000# ST/BD
13	2	2.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 1/2" NPT
14	2	2.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 2" NPT
15	1	7.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 2" NPT
16	16	7/8x6.1/4	N.I.S.	BOLT STUD SET AS PER ES-SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
17	24	1.1/8x8.1/2	N.I.S.	BOLT STUD SET AS PER ES-SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
18	16	1.3/8x10	N.I.S.	BOLT STUD SET AS PER ES-SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
19	6	2.1/16	N.I.S.	RING GASKET, RX24, PSL2 SOFT IRON, MARKED AS PER API 6A
20	2	7.1/16	N.I.S.	RING GASKET, RX45, PSL2 SOFT IRON, MARKED AS PER API 6A
21	1	11	N.I.S.	RING GASKET, RX53, PSL2 SOFT IRON, MARKED AS PER API 6A
22	2	NPS 1/2	105095	PLUG THD., FORGED STL. 41370kPa, SQ HD
23	3	NPS 2	105063	PLUG THD., FORGED STL. 41370kPa, SQ HD
24	2	NPS 1/2x102	103606	NIPPLE, ASTM A106, GR.B XXS
25	1	NPS 2x102	104211	NIPPLE, ASTM A106, GR.B XXS
26	40m	406.4mm	N.I.S.	CASING, 76.49kg/m, LINE PIPE
27	90m	339.7mm	N.I.S.	CASING, 71.43kg/m, H40
28	600m	244.5mm	N.I.S.	CASING, 53.57kg/m, K55
29	950m	177.8mm	N.I.S.	CASING, 34.23kg/m, K55

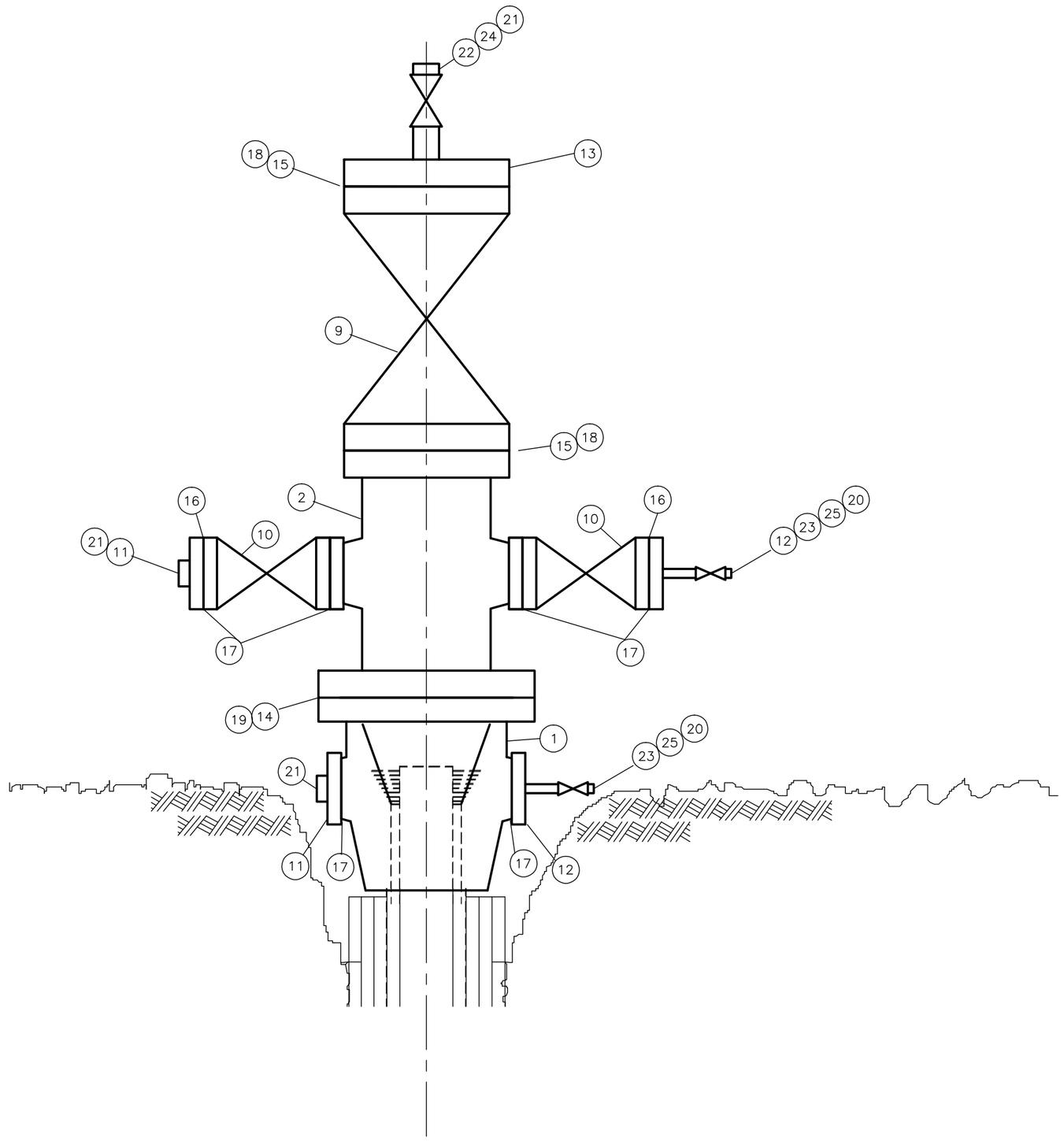
REVISIONS

NO.	DATE	BY	APP'D	REMARKS

uniongas

WELL PAINCOURT 3
JACOB POOL, LOT 6, CON. 4 DOVER TWP.

DRAWN BY: I.A. MILNE	DATE: 2011.05.24	SCALE: 1:10	PLOT SPEC: 1=10
CHECKED BY:	DATE:	AC/DRAW CODE: D744-03	
APPROVED BY:	DATE:	JOB NO.	
SIZE: C	DRAWER:	SHEET:	DRAWING NO.: D744-03



WELL PROFILE
N.T.S.

DENOTES NEW WELLHEAD MATERIAL

DENOTES EXISTING MATERIAL

WELL PROFILE
SCALE – 1:10

NOTES:
1) CO ORDINATES FOR WELL RAM ROWE 9
476.1m NORTH OF S'LY LOT LINE
109.7m EAST OF W'LY LOT LINE
TOP HOLE COORDINATES
LAT 42.37641667
LONG –82.33338889

2) GUELPH OBSERVATION WELL

3) GROUND ELEV. IS 176.05m

4) kb ELEV. IS 177.6m

KEY PLAN

BILL OF MATERIALS

ITEM No	QUAN.	SIZE	STOCK No	DESCRIPTION
1	1	177.8mm x 9	N.I.S.	CASING BOWL, 177.8mm 8rd LONG THREAD x 9, TYPE NSB C/W 2–1/16"
				SSO, GR. L7 STUDS, GR. 4L NUTS, API 6A 3000 L AA PSL2 PR2
				EXTENDED HYDROSTATIC BODY TEST WILL BE CONDUCTED PER API 6A
				7.4.9.5.4 W/ 2ND HOLD 4 HOURS
2	1	9 x 7.1/16	N.I.S.	TUBING SPOOL ASSEMBLY TYPE B, 9 x 7.1/16 C/W 2–1/16" SSO, GR. L7
				STUDS, GR. 4L NUTS, API 6A 3000 L AA PSL2 PR2. EXTENDED HYDROSTATIC
				BODY TEST WILL BE CONDUCTED PER API 6A 7.4.9.5.4 W/ 2ND HOLD 4 HRS
3	1	9 x 4.1/2	N.I.S.	MANUAL CASING SLIPS
4	2	9 x 4.1/2	N.I.S.	PRIMARY SUPPORTS TYPE B 9"x4.1/2"
5	1	9 x 4.1/2	N.I.S.	PRIMARY PACKING TYPE B 9"x4.1/2"
6	2	9 x 4.1/2	N.I.S.	SECONDARY SUPPORTS TYPE B 9"x4.1/2"
7	1	9 x 4.1/2	N.I.S.	SECONDARY PACKING TYPE B 9"x4.1/2"
8	1	7.1/16x4.1/2	N.I.S.	BIT PILOT TYPE B 7.1/16"x4.1/2"
9	1	7.1/16	N.I.S.	GATE VALVE, API 6A 3000 L AA PSL2 PR2
10	2	2.1/16	N.I.S.	GATE VALVE, API 6A 3000 L AA PSL2 PR2
11	2	2.1/16	N.I.S.	BLIND FLANGE, RJ, API 6A 3000 L AA PSL2, TAPPED TO 2" NPT
12	2	2.1/16	N.I.S.	BLIND FLANGE, RJ, API 6A 3000 L AA PSL2, TAPPED TO 1/2" NPT
13	1	7.1/16	N.I.S.	BLIND FLANGE, RJ, API 6A 3000 L AA PSL2, TAPPED TO 2" NPT
14	12	1.3/.8x9.1/2	N.I.S.	BOLT STUD SET PER ES–SF3.0, GR. L7 STUDS, GR. 4L NUTS
15	24	1.1/8x8.1/2	N.I.S.	BOLT STUD SET PER ES–SF3.0, GR. L7 STUDS, GR. 4L NUTS
16	16	7/8x6.1/4	N.I.S.	BOLT STUD SET PER ES–SF3.0, GR. L7 STUDS, GR. 4L NUTS
17	6	2.1/16	N.I.S.	RING GASKET, RX24 PSL2 SOFT IRON, MARKED AS PER API 6A
18	2	7.1/16	N.I.S.	RING GASKET, RX45 PSL2 SOFT IRON, MARKED AS PER API 6A
19	1	9	N.I.S.	RING GASKET, RX49 PSL2 SOFT IRON, MARKED AS PER API 6A
20	2	NPS 1/2	105095	PLUG, THD, FORGED STL., 41370 kPa, SQ HD
21	3	NPS 2	105063	PLUG, THD, FORGED STL., 41370 kPa, SQ HD
22	1	NPS 2x102	104211	NIPPLE, ASTM A106, GR.B, XXS
23	2	NPS 1/2x102	103606	NIPPLE, ASTM A106, GR.B, XXS
24	1	NPS 2	107422	BALL VALVE, THD., 3000#/2000#, ST/BD
25	2	NPS 1/2	107328	BALL VALVE, THD., 3000#/2000#, ST/BD
26	104m	244.5mm	N.I.S.	CASING, 54.01kg/m
27	336m	177.8mm	N.I.S.	CASING, 36.00kg/m
28	1035m	114.3mm	N.I.S.	CASING, 14.00kg/m

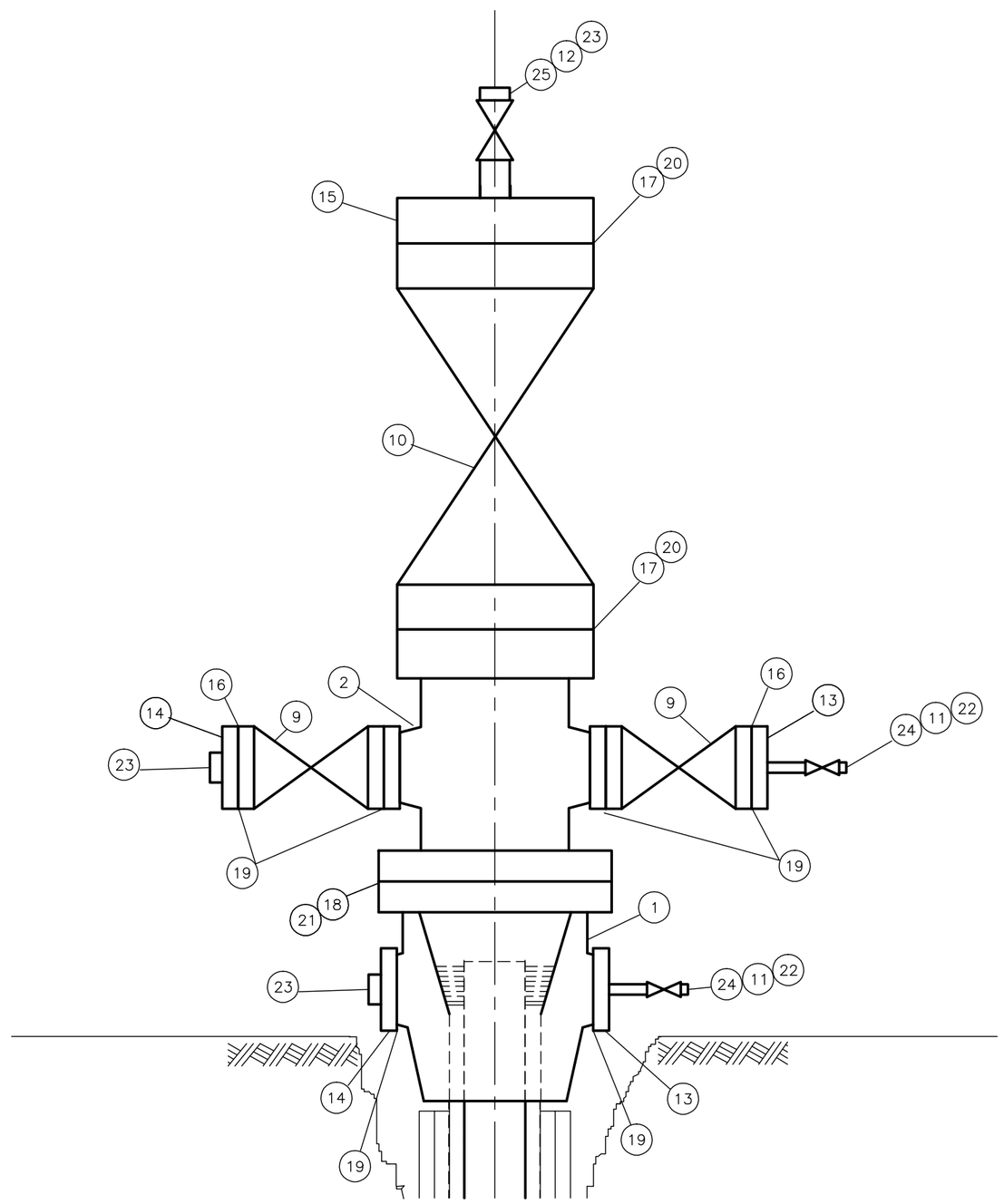
REVISIONS

NO.	DATE	BY	APP'D	REMARKS

uniongas

WELL ROWE RAM 9 LICENSE NO. T006778
JACOB POOL, LOT 7, CON. 4E

DRAWN BY: I.A. MILNE	DATE: 2011.05.24	SCALE: 1:10	PLOT SPEC.: 1=10
CHECKED BY:	DATE:	AC/DRAW CODE: D744–04	
APPROVED BY:	DATE:	JOB NO.:	
SIZE: C	DRAWER:	SHEET:	DRAWING NO.: D744–04



WELL PROFILE
SCALE – 1:10

NOTES:
1) CO ORDINATES FOR WELL CANERERCO/CNR 23
443.6m SOUTH OF N'LY LOT LINE
290.1m WEST OF E'LY LOT LINE
TOP HOLE COORDINATES
LAT 42.37322222
LONG –82.34675000

2) GUELPH OBSERVATION WELL

3) GROUND ELEV. IS 175.66m

4) kb ELEV. IS 179.31m

KEY PLAN

BILL OF MATERIALS

ITEM No	QUAN.	SIZE	STOCK No	DESCRIPTION
1	1	219.1mmx11	N.I.S.	CASING BOWL, 219.1mm 8RD x 11, TYPE NSB, C/W 2.1/16 SSO GR L7
				STUDS, GR. 4L NUTS, API 6A 3000 L AA PSL2 PR2, EXTENDED HYDROSTATIC
				BODY TEST WILL BE CONDUCTED PER API 6A 7.4.9.5.4 W/ 2ND HOLD PERIOD
				EXTENDED TO 4 HOURS
2	1	11 x 7.1/16	N.I.S.	TUBING SPOOL ASSEMBLY TYPE B, 11" x 7.1/16" c/w 2.1/16, SSO, GR. L7 STUDS,
				GR. 4L NUTS, API 6A 3000 L AA PSL 2 PR2, EXTENTED HYDROSTATIC BODY TEST WILL
				BE CONDUCTED PER API 6A 7.4.9.5.4 W/ 2ND HOLD PERIOD EXTENDED TO 4 HOURS
3	1	11 x 5.1/2	N.I.S.	MANUAL CASING SLIPS
4	2	11 x 5.1/2	N.I.S.	PRIMARY SUPPORTS TYPE B 11"x5.1/2"
5	1	11 x 5.1/2	N.I.S.	PRIMARY PACKING TYPE B 11"x5.1/2"
6	2	11 x 5.1/2	N.I.S.	SECONDARY SUPPORTS TYPE B 11"x5.1/2"
7	1	11 x 5.1/2	N.I.S.	SECONDARY PACKING TYPE B 11"x5.1/2"
8	1	7.1/16 x 5.1/2	N.I.S.	BIT PILOT TYPE B 7.1/16"x5.1/2"
9	2	2.1/16	N.I.S.	VALVE, GATE API 6A 3000 L AA PSL2 PR2
10	1	7.1/16	N.I.S.	VALVE, GATE API 6A 3000 L AA PSL2 PR2
11	2	NPS 1/2	107328	BALL VALVE, THD., 3000#/2000# ST/BD
12	1	NPS 2	107422	BALL VALVE, THD., 3000#/2000# ST/BD
13	2	2.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 1/2" NPT
14	2	2.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 2" NPT
15	1	7.1/16	N.I.S.	BLIND FLANGE, RJ API 6A 3000 L AA PSL2 TAPPED TO 2" NPT
16	16	7/8x6.1/4	N.I.S.	BOLT STUD SET AS PER ES–SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
17	24	1.1/8x8.1/2	N.I.S.	BOLT STUD SET AS PER ES–SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
18	16	1.3/8x10	N.I.S.	BOLT STUD SET AS PER ES–SF3.0 GR. L7 STUDS, 4L NUTS C/W 2 HEX NUTS
19	6	2.1/16	N.I.S.	RING GASKET, RX24, PSL2 SOFT IRON, MARKED AS PER API 6A
20	2	7.1/16	N.I.S.	RING GASKET, RX45, PSL2 SOFT IRON, MARKED AS PER API 6A
21	1	11	N.I.S.	RING GASKET, RX53, PSL2 SOFT IRON, MARKED AS PER API 6A
22	2	NPS 1/2	105095	PLUG THD., FORGED STL. 41370kPa, SQ HD
23	3	NPS 2	105063	PLUG THD., FORGED STL. 41370kPa, SQ HD
24	2	NPS 1/2x102	103606	NIPPLE, ASTM A106, GR.B XXS
25	1	NPS 2x102	104211	NIPPLE, ASTM A106, GR.B XXS
26	99m	298.5mm	N.I.S.	CASING, 62.50kg/m
27	614m	219.1mm	N.I.S.	CASING, 35.70kg/m
28	1158m	139.7mm	N.I.S.	CASING, 23.10kg/m

REVISIONS

NO.	DATE	BY	APP'D	REMARKS

uniongas

WELL CANENERCO/CNR 23 LICENSE NO. T007641
JACOB POOL, LOT 5, CON. 4 DOVER TWP.

DRAWN BY I.A. MILNE	DATE 2011.05.25	SCALE 1:10	PLOT SPEC. 1=10
CHECKED BY	DATE	AC/DRAW CODE D744–05	
APPROVED BY	DATE	JOB NO.	
SIZE C	DRAWER	SHEET	DRAWING NO. D744–05

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

m) Re: Issues 2 and 3:

At section 4, paragraph 7 of the Applicant's Prefiled Evidence it is proposed that wells RR9 (Licence T006778) and CanEnerco/CNR #23 (Licence T009591) be converted to observation wells. Will these wells be upgraded to meet storage standards?

If RR9 (Licence T006778) and CanEnerco/CNR #23 (Licence T009591) wells will not be upgraded to meet storage standards, why not?

If RR9 (Licence T006778) and CanEnerco/CNR #23 (Licence T009591) will be upgraded to meet storage standards, please specify all of the changes that will be made.

Response:

Wells RR9 and CanEnerco/CNR #23 will be upgraded to meet storage standards. RR9 will receive a new wellhead, remedial cementing on the production casing, a casing inspection log, a cement bond log and a pressure test. CanEnerco/CNR #23 will receive a new wellhead, a casing inspection log, a cement bond log and a pressure test. Based on the results of the logging and pressure test additional work may be required.

UNION GAS LIMITED
Response to Interrogatory
from Ministry of Natural Resources ("MNR")

n) Re: Issues 1, 2 and 3:

At Section 5, Schedule 1 of the Applicant's Prefiled Evidence reference is made to a proposed reservoir monitoring program for the Jacob Pool. What specific precautions are planned to ensure that the storage zone is capable of containing the proposed working pressures during initial injection and delta pressuring phases?

Please elaborate on what observed data and/or calculations would indicate a problem with injected volumes or pressures. I.e., What, threshold or difference between expected and actual results, would indicate a problem that would necessitate a halt to injection operations?

Response:

In general, pressures and inventories will be closely monitored during initial injections as outlined in the "Proposed Reservoir Monitoring Program" contained in Section 5 – Schedule 1. In accordance with the agreements with Liberty Oil & Gas Ltd. And Torque Energy Inc., Union will receive production and pressure data for all wells within the Designated Storage Area and the Dover 7-5-VE field.

Pressuring monitoring will be completed in the Jacob Pool, in the Black River Group below the Jacob Pool and in other producing reservoirs adjacent to the Jacob Pool.

Increases in pressure, changes in GOR's and increases in flow from VRI5 would trigger a concern about communication between the Trenton and Black River Formations.

Union will monitor pressures against injected volumes. Deviation from the historical production decline trend curve is expected during initial injections as the tighter rock matrix is pressurized. Unexplained pressure increases in adjacent production wells would necessitate further investigation and potentially halt injections.

As stated in Section 3 paragraph 28 of the pre-filed evidence, Union will partially fill the pool to a bottom hole pressure of 9,150 kPaa in the first year. In the second year of operations the pool will be filled to 10,280 kPaa.